

E.N.I.G.M.A.

11

EUROPEAN NUMBERS INFORMATION GATHERING
AND MONITORING ASSOCIATION



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ENIGMA is the journal of the European Numbers Information Gathering and Monitoring Association.

ENIGMA is a non-profit making association of listeners who monitor and gather information on 'Number Stations' and other related radio transmissions. ENIGMA aims to bring together listeners and enthusiasts and provide quality information on subjects not normally available from main-stream publications.

Subscriptions

4 Copies of ENIGMA - are available for £6.00 sterling - includes postage for the UNITED KINGDOM.

4 Copies of ENIGMA - are available for £10.00 sterling - includes airmail postage for REST OF THE WORLD.

You may pay by Sterling Cash, US Dollars, Eurocheques or American Express cheques (in Sterling) or by UK Cheques or Postal Orders payable to Mr C A Midgley.

Contributions

We appreciate all contributions to the newsletter (including anonymous information). We regret that we are not always able to provide a personal reply but, rest assured, we read and collate all information for present and future use. Questions are answered via our " Letters to ENIGMA " pages. ENIGMA is also a discussion forum and we welcome comments about the newsletter. If you are interested in writing a feature please contact us at the mailing address.

Acknowledgements

Information in ENIGMA may be reproduced, but please mention ENIGMA and if possible the originator of the article, we would appreciate any cutting's in which ENIGMA is mentioned.

NEXT ISSUE... We aim to publish the next issue of ENIGMA in late February 1997.

Contributions would be appreciated by FRIDAY JANUARY 24 1997.

THANK YOU

COVER ISSUE 11 ENIGMA ' Fun Caption Competition ' - Send in your captions and tell us what the two men in the cover picture are saying. Sorry no prize but we will print the best in issue 12.

ENGLISH LANGUAGE STATIONS (Other active stations: // direct equivalent / family member)

E1) READY READY - Mode AM //M17

Still very active. Transmissions repeat on two frequencies at 20 minute intervals.

SUN WK 1	22.00	?	MON WK 2/4	20.00	4740 04
SUN	22.20	?		20.20	3410 04
SUN	22.40	4740 62		20.40	3910 04
MON WK 2/3	21.30	4740 32	TUE WK 1/2	19.00	4740 06
	21.50	4460 32	3	19.20	3910 06
	22.10	4270 32		19.40	3410 06
WED WK 1/3	19.00	4740 84	WED WK 1/2	22.00	6930 13
	19.20	3910 84	4	22.20	6675 13
	19.40	3410 84		22.40	5695 13

May move to lower frequencies for winter months. All reports appreciated.

E3) LINCOLNSHIRE POACHER - Mode USB //E4

Transmissions continue between 10.00 and 22.00 each day. Starting at the top of each hour for 45 minutes. Three frequencies are selected from the list shown below. Jamming from Iran (?) continues to affect transmissions between 10.00 & 14.00 and between 20.00 & 22.45. Jamming can be quite severe in Europe.

The frequency usage depends on message scheduling although two particular frequencies are only used once each week. These are 7755 on Tuesday at 15.00 (with 8464 and 10426) and 6900 on Saturday at 20.00 (with 11545 and 10426).

Full frequency list is 16475 16084 15682 14487 13375 12603 11545 10426 9251 8464 7755 7337 6959 6900 6485 5746 5422. Recent reports have suggested that two transmitter sites are in use on Cyprus - BEMRS Station Zygi & a further site at Cape Gatta. Comments welcome.

It was recently reported that a transmission on 9251 kHz was going on and off the air during the pre-amble. During this period a weak LP signal could be heard in the background. Two transmitters in use at the same time?

Heard with ID signal and no message, testing on 6968 at 13.50 UTC.

E4) CHERRY RIPE - Mode USB //E3

LP's sister station is still active using the same female voice but a different musical marker. Recent reports suggest that this is sent over US transmitters based in Guam. The US magazine Popular Communications, however, also reported the possible use of a location in Singapore.

New frequencies have been noted in Japan, reception is difficult in Europe.

Transmissions follow Lincolnshire Poscher format starting on the hour for 45 minutes. At present we are receiving reports of transmissions between 10.00 and 14.45. I would suggest you try the following frequencies.

10452 11570 13866 14469 17499 20474 23411

We have also heard of one transmission at 20.00 on 4768 heard in Asia, this is not audible in Europe at this time.

All reports appreciated.

E5) COUNTING STATIONS - Mode AM //G5/E14

Still very active in English language.

Following based on reports received since last issue. Special thanks to Peter in SW. Schedules are short lived and prone to sudden changes. // Frequencies shown where known.

MON 07.00 9160	WED 12.00 11470	FRI 13.00 14475
MON 15.00 8143/10727	WED 13.00 8116	FRI 15.00 8085/10597
MON 16.00 9219/11491	WED 15.00 11123	FRI 20.00 5850/ 8143
MON 20.00 7747/ 9160	WED 17.00 9219/11491	FRI 21.00 9357
	WED 18.00 6970/ 8143	
TUE 14.00 7470/12221	WED 20.00 5850/ 8143	SAT 07.00 9070/11073
TUE 15.00 7600/10567		SAT 12.00 11470
TUE 17.00 9220/11491	THR 06.00 9219	SAT 13.00 7547/10529
TUE 20.00 8143/ 5850	THR 07.00 9160	SAT 15.00 8143/10727
	THR 16.00 9219/11491	SAT 16.00 10529
	THR 18.00 10727	SAT 20.00 7740/ 9160
	THR 20.00 5850/ 8143	
SUN 07.00 11072/9070	SUN 14.00 7470/12221	SUN 16.00 7473/9070
SUN 12.00 13874/15822	SUN 15.00 8143/11123	SUN 17.00 9274
		SUN 18.00 11072/13444

EG & E7) ENGLISH MEN '00000' & '000 000' Mode AM //S6 & S7 Families

See also our newspaper review "Russia steps up spying against Germany" in this issue. Still very active, I recently found one English Man in the middle of the Maritime CW (Coast Stations) band transmitting a 63 group message on 8546. They turn up all over the HF bands night and day.

Schedules are long and frequencies use seem almost random.

E9) MAGNETIC FIELDS Mode AM //V8

Unfortunately the weekly Monday transmission on 6645 +/- at 18.00 seems to have ended. It did also have the habit of turning up sometimes at 19.00 instead but has not been heard recently.

Only one confirmed report SAT 09.20 11290 It is possible that the station is still active at other times/frequencies.

See also V8 which is the sister station.

E10) PHONETIC ALPHABET -NATO Mode AM/SSB

Still very active indeed. We recently noted new call-sign Tango Mike Sierra (TMS 22) on 5339. At first I thought this was a new call as it did not appear on any of my own records or in documents in our files. But by a strange coincidence it turned up on a cassette tape we received of numbers station recordings from the late 1970's. So TMS is not quite a new call, just a very rare one.

We are preparing a feature about message strings (VLB 22D45D46E47) etc. for the next issue. I hope to be able to throw light onto these strange transmissions.

All information shown below is based on reports received since last issue. Some frequencies share call signs.

2270 JSR 2540 VLB 2743 ULX 2844 YHF 3090 SYN 3150 PCD 3253 ULX
3270 KPA 3415 ART 3495 MIW 3640 CIO 3960 VLB 4165 SYN 4360 KPA
4463 FTJ 4665 CIO 4780 KPA 4880 ULX 5092 JSR 5170 VLB 5232 MIW
5437 ART 5339 TMS 5530 VLB 5630 SYN 5820 YHF 6270 ??? 6370 MIW
6600 NDP 6660 SYN 6746 CIO 6842 EZI 7322 FTJ 7445 VLB 7606 VLB
7920 ??? 8127 CIO 8642 CIO 9130 EZI 9270 KPA

10125 SYN 10352 CIO 10820 VLB 11565 12747 CIO EZI 12950 SYN
14750 SYN 15016* VLB 17410 EZI. Drop in activity at + 10 MHz.

* Reports of VLB still active on 15016 at 09.45 & 10.45.
Other oddities include NDP-R & NDP-X plus TMS-22. The longest ever message string from VLB recently was VLB 14B2Z156Z133Z140Z172Z117Z188. More on these in issue 12.

Also to end on this station. VLB was heard for a few days on 5530 at 20.00, on top of station E15 Nancy Adam Susan, VLB later moved to avoid interference.

E11) "OBLIQUE" Mode AM/SSB //S12//G11//M3

231 is still active and was last heard on FRI at 20.30 4780 moves between 3060 4015 4780 & 5050 depending on time of year. Try each Friday.

New 746 reported last issue seems to be in hiding. Last noted on TUE at 20.00 4015 and THU 20.30 3060.

All reports of this family very welcome.

E12 N N N Mode AM /M2

No changes to this station. Still active with excellent signal in Europe at following schedule.

MON 04.00 4573	WED 04.00 4573	THU 04.00 5821	FRI 04.00 4573
MON 21.00 4644	WED 21.00 4644	THU 20.00 5821	FRI 21.00 4644

Could any utilities expert please tell me who operates the signal which is on 4644 almost non stop in the evenings ? It would be interesting to know who operates this data mode signal.

E14 4F 'COUNT CONTROL' Mode AM //E5/G5

No longer active.

E15 PHONETIC ALPHABET - pre NATO Mode AM/SSB

Reception around Greece reported to be good, can readers in this area please confirm, reception in UK very weak.

11.00	18000	BEC	17.00	14000	FYS
12.00	17503	WSU	17.30	5834	MSA
12.30	11170	MSA	18.00	5834	USP
13.00	11000	BEC	19.00	4130	SAR
14.00	14000	FYP	20.00	5530	NAS
16.30	6715	NAS	21.00	4130	MSA

E16) TWO LETTER (ENGLISH) Mode SSB //G16

Good news. Two reports received since last issue when we reported no traffic in English. Stations AU - Alpha Uniform and MD - Mike Delta are still around.

AU seems to have a different purpose to other call signs in this set up. Transmissions from AU are quite rare but unlike any others in this family they appear on 2 // frequencies, usually 4821 and 4888. Transmissions always start on the hour and are repeated one hour later. Last ID heard was 192.

Mike Delta is also still around and more details can be found in Simon Masons column, along with latest operating schedule.

E17 ENGLISH LADY '00000' ENDING Mode AM

Still about but keeping a low profile this odd little station with its '00000' would suggest it is part of a much larger family, but we are not certain.

Likes the random approach to transmitting and appears without warning at the strangest of times. Only two reports received this time round.

23.30 5861 calling 932
16.00 7 MHz area calling 591

Looking back through old copies of ENIGMA this station has sent messages for :

124 168 208 274 276 347 372 482 531 561 636 657 893. Only 274 seemed to ever receive lots of messages, the rest never seem to receive more than one message. What does this mean? Do we really need to know?

GERMAN LANGUAGE

G2) SWEDISH RHAPSODY Mode AM/SSB //M4

For detailed schedule please refer to issue 10. The following notes contain additional transmissions noted since issue 10 and also frequency changes.

We would be interested in hearing from any reader who would like to take on the task of monitoring this station. We can provide special logging sheets for Swedish Rhapsody. The job would be ideal for someone with lots of time and who enjoys complicated schedules !

CHANGES AND NOTES ONLY - THIS IS NOT A FULL SCHEDULE - USE WITH ISSUE 10.

DAY	TIME	FREQUENCY		1	2	3	4	5
SAT	09.00	8188 SSB	ADD		*3	3		
SAT	12.00	6507 SSB	NEW FREQ	*3			*3	
SAT	22.00	3825 SSB	ADD	*3	*3			
SAT	22.30	3825 SSB	ADD	*3	*3			
SUN	12.00	6507 SSB	NEW FREQ	*3	*3	*3	*3	*3
SUN	21.00	5340	ADD			*1		
SUN	21.30	4832 AM	ADD	*1C				
MON	19.00	5340	ADD		*3			
TUE	23.00	3825 SSB	ADD			*3		
THU	19.00	5340 MCW	ADD			*3		

Important note : Monday transmissions on 7314 AM will move to 6200 for winter months. Transmissions currently on 6200 will move to 5748 for winter months.

Please send in all logs of this station. Remember Week 1 starts on the first Saturday of each month. Note also that no transmissions take place on Friday.

G4) 3-NOTE ODDITY - Mode AM //M29A

Only two regular slots believed to be in use at present.

MON & WED 13.30 APR ???? MAY 5618 JUNE ???? JULY 5128 AUG ????

SUN 20.05 APR 4581 MAY 4165 JUNE 4340 JULY 3935 AUG 4165
SUN 20.35 APR 4481 MAY 4065 JUNE 4240 JULY 3835 AUG 4065

SUN 20.05 SEP 3931
SUN 20.35 SEP 3831

Stays on CET (Times shown UTC). Transmission will be one hour later in winter months. See also sister station M29A - VDE.

G5) COUNTING STATION Mode AM //E5/E4

No reports received, may now be inactive.

G6) GERMAN LADY '00000' ENDING Mode AM//S6 Family

Sends all messages using PAIRED groups. Uses regular time slots but seemingly random frequencies. Messages are repeated on a different frequency following first airing.

MON 19.00 & 20.00 ID's include 294 & 310 .
TUE 19.00 & 20.00 Tends to move towards lower frequencies
SUN 19.00 & 20.00 for winter.

G7) GERMAN LADY '000 000 ENDE' ENDING Mode AM //S7 Family

Sends all messages using SINGLE groups, uses 3F or 4F decode key. Each transmission is repeated on 2 further frequencies. Nil messages are repeated only once.

Recent activity noted ;

AUG WED 05.00 7763 9363 10663 '736'
JULY FRI 18.00 9427 8127 6927 '419'
AUG FRI 18.00 10227 9127 '213'
JULY SAT 08.00 10227 9427 8127 '149'
AUG SAT 08.00
JULY SUN 07.00 11145 12225 13405 '124'
AUG SUN 07.00

G11) STRICH Mode AM //E11//S12//M3

Regular slots, but changes frequency without warning. Two ID's are active at present : 496 & 752.

2nd & 4th WED 06.00 6750 or 7580 Calling 496
WEEKLY TUE 21.00 3823 4015 4780 or 5050 Calling 752
WEEKLY WED 08.00 6430 or 7840 Calling 752

G16) GERMAN TWO LETTER STATIONS Mode SSB/AM //E16

Please see "Simon Mason Writes" for some further 2 - Letter news. Traffic from this set up is very low at present.

At the time of going to press only WL and GK are active in German and MD & AU in English.

Frequencies are selected from the following list ; 2690 2707 2745
3228 3262 4543 4594 4821 4888 5015 5182 5732 5770 6765 6853 7404
7532 7661 7752 7858 8063 8173 9040 9325 9450

10170 10460 10500 10740 11108 11545 11617 12092 12210 12314 13362
13752 13775 13890 14622 14945 15610 16055 16620 16414 17430 18195
18575 19295 19755 20240 20350 20675 22885
Catch this station while you can, it could end soon !

SLAVIC LANGUAGES

S2) DRUMS & TRUMPETS - Mode AM /E1?/M17?

In May we were at last able to find the repeat transmission, the first broadcast takes place at 19.30 on 4740 with an immediate repeat at approximately 19.45 on 3410.

Unfortunately the expected transmissions on the 9th of July and 9th of August did not appear. It is possible that this station is still around but operating on a different date of the month. Any reports appreciated.

S6) & S7) RUSSIAN MEN '00000' & '000 000' ENDING Mode AM

S6) Family : E6//G6//V6//M14/S25

S7) Family : E7//G7//V7//M12

No major changes. Still very active on a wide range of frequencies. Schedules are very protracted and frequency usage and ID's prone to sudden change.

Possible daily transmission S7 at 05.00 for '813' heard on 7883 9183 and 10383 (noted on 9193 on one occasion).

Also S6C sending single group messages include FRI 08.00 6934 sending message group " 11715 " and on WED 08.00 6830 sending " 22425.

S6B format noted with two group message THU 18.00 6845 sending 203 346/2 = 11111 00031.

S7 format noted sending 401 group message on MON June 11 to agent 283 and on FRI July 12 a further 401 groups to agent 642. A previous 401 group message was noted back in March 1995. What does it all mean ?

S8) YT YT YT Mode AM/SSB //M27(BTV)

No changes to the YT operation. Reception should improve in Europe during the darker winter evenings.

MON 06.30 4425	WED 06.30 4425	May operate 1 hour later
MON 14.00 4755	WED 14.00 4755	in Winter than shown.
MON 18.00 4425	WED 18.00 4425	

S12) CHERTA Mode AM //G11//E11//M3

Still active but like all family members is prone to sudden frequency changes.

Try 1st & 3rd WED of Month	21.00 4015	or 5180	Call 971
Try 1st MON of Month	21.00 3823	or 4465	Call 755

S13 & S14) RUSSIAN COUNTING MEN/WOMEN Mode AM/SSB

S13) Not noted for some time, transmissions are only 2 minutes duration.

S14) Still a few around. Consists of a repeating loop tape which goes on for hours on end.

Recent logs have included :

MON 19.00 4330 Male in AM
TUE 19.00 3875 'GORA 43'
FRI 22.00 4064

S16) OLX Mode SSB, Morse Call Up, and //M6 OLX

Still operating 23 hours per day - The Czech Secret Service are busy !

Transmissions start at 5 minutes to each hour for about 20-40 minutes. About 50/50 Morse and voice messages.

To make listening even simpler they are at present using only the following frequencies.

Daily 17.00 to 22.00 5301//9320 //11416
00.00 to 04.00 5301//9320 //11416
04.00 to 18.00 8142//14977//18303

It would be interesting to find out if all 3 transmitters are situated inside the Czech republic. I suspect that at least one is not ?

May change frequencies for Winter.

S17) CZECH LADY "CONTROL" Mode AM

Again no changes to this station.

Daily 13.55 to 14.02 4485/5027 - single 5F message.

S18/19) CZECH MAN Mode AM

No reports received.

S21) RUSSIAN LADY Mode AM //M45

Still quite active, although we have not received many reports this time round.

MON 19.45 5290 Calling 491
TUE 17.40 5740 Calling 342
THU 17.40 5740 Calling 342
THU 19.45 5290 Calling 491

S25) RUSSIAN MAN "CONTROL" Mode AM /S6 Family

Daily at 08.00 on 14890 ID always 615.
08.20 on 11270*

May not move here if 08.00 message is non - standard. i.e. S25A/B.
11270 may or may not be used thereafter.

OTHER LANGUAGES

V2) SPANISH LADY 2 or 3 FINALS Mode AM //M8

For full schedule details please refer to issue 10. Stations still very active, particularly during period 03.00 to 09.00.

V5A) COUNTING - SPANISH 4F

Just one report received.

MON 03.00 6803

V6) SPANISH LADY '00000' ENDING Mode AM //S6 Family

Part of the S6 Family.

Likes random times and frequencies but gives a strong signal in Europe.

Likes FRI at 20.00 and 21.00 Calling 834 Frequencies seem random but have included 8057 11467 12210 & 13551. Will drop lower for winter months.

V7) SPANISH MAN ENDS '000 000' Mode AM //S7 Family

Part of the S7 Family.

In May call '212' became '273' and still is. The station changes frequency each month and recent logs include : -

TUE & THU at approximately 06.20 May 9062 June 9142 July 9109

Also a one off transmission was noted on THU at 06.30 on 6780 for '519'.

V8) EASTERN MUSIC STATION Mode AM /E9

This station is related to E9 the 'Magnetic Fields' outfit. The language used by V8 may be Arabic. It is possible that the message is made up of groups which are read out in an unusual manner.

Normal reading of the numbers 41190 would be FOUR ONE ONE NINE ZERO

This station may read the numbers FORTY ONE - ONE HUNDRED & NINETY.

Which in Arabic would be read WAHID WA ARBAEEN - MEAH WA TESEEN.

This may account for the unusual format.

Single Numbers in Arabic are - (1) Wahid (2) Ethnain (3) Thalatha (4) Arba-a (5) Khamsah (6) Sittah (7) Sab-ah (8) Thamaniyah (9) Tes-ah.

Transmissions seem to take place on the first FRI and first SAT of the month.

1st FRI 08.20 11290 +/- 5kHz
1st SAT 18.00 6645 +/- 5kHz

V9) ORIENTAL LANGUAGES Mode AM

Radio Pyongyang was noted recently with 3F codes read by male voice.

WED 6520 sign off at 19.45

6575 was operating the normal German language service at this time.

Suggest you try also in mid afternoon on 6250 or 6398 both of which have carried numbers in the recent past.

Other unidentified Far East stations reported have included ;

TUE 20.00 8973 5 minutes of repeating cycle then sign off
MON 16.00 8024 'Wunzy Too Hi' Any ideas on this one.
MON 17.00 8024 'Wunzy Too Hi'

V13) NEW STAR BROADCASTING Mode AM

The only New Star Broadcasting frequency which seems to reach Europe with a readable signal is 8300 which can be heard in the afternoon and evenings.

Other known frequencies used by this Taiwan based station are 9725 11430 13750 & 15388.

XPH HIGH PITCH POLYTONE TRANSMISSIONS - Mode AM

Still some regular time slots in use. Changes from Summer time back to UTC for winter. Frequencies are changed most months.

Transmissions noted at ;

TUE/FRI	20.00	JUNE	TUE/FRI	20.00	JULY	TUE/FRI	20.00	AUG
		13442		12219			10830	
		11542		11019				
		10242		9919				
WED	06.00	JUNE	WED	06.00	JULY	WED	06.00	AUG
		12099		12099				
		10399		10399			8172	

X6) The 6 Tone repeating stations are still very active. No schedule has ever been established. Some transmissions have been known to repeat within the hour.

It is well worth staying on the frequency once the 6 tone AM signal ends. On odd occasions a short string of morse is sent followed by an FSK message. This sometimes occurs about 30 seconds after the 6 tone signal leaves the air.

In May we wrote to the Swiss PTT concerning HEP, the reply can be seen on the next page.

Direction General De L'Enterprise Des PTT, Viktoriastr.21,CH-3030
BERNE, Switzerland.

Dear Sir,
I represent the ENIGMA Newsletter, a non-profit making association of listeners who monitor and gather information on radio related matters.

I would like to ask if it would be possible to provide us with information on a station which uses the call-sign HEP. This call-sign is allocated to Switzerland under the International Allocation of Call-Signs.

The signal sent in C.W. with the call-sign HEP operates 24 hours per day on 3314 5268 6871 and 9186 kHz using a 1 minute cycle.

Would you please explain the location and purpose of this signal in order that we can inform our readers.

If you also have a contact address for station HEP this would be most appreciated.

Thank you in anticipation of your reply.

Yours Faithfully,

Chris A. Midgley for ENIGMA Newsletter.

May 20th 1996.

Encl ; 2 IRC's.

Generaldirektion PTT
Direktion Radiocom
Speichergasse 6
3030 Bern

Telefon 031 338 24 35
Telex 911 025 rrv ch
Fax 031 338 19 10
Telegramm Gentel
Postkonto 30-320-6

TELECOM 

Ihr Zeichen
Votre référence
Vostro riferimento

Ihre Nachricht vom 20.05.1996
Votre communication du
Vostra comunicazione del

Unser Zeichen
Notre référence
Nostro riferimento

Sachbearbeiter(in)
Objet traité par
Oggetto trattato da

Datum 03.07.96
Date
Data

423.73.4

Hansueli Brunner

ENIGMA Newsletter

c/o B.R.C.

attn: Chris A. Midgley

17 - 21 Chapel Street

Bradford, West Yorkshire BD1 5DT

England

Dear Sir,

Thank you for your letter of May 20th, 1996 requesting information on the station which uses the callsign HEP.

Our law concerning the protection of privacy does not allow us to give you any information on the above mentioned station.

We regret not to be able to provide you with the requested information.

Yours respectfully

Section Radiocom and
Broadcast licensing

pp. Rida

MORSE STATION NEWS

As usual, there's a lot to report - far more than can be put into a few pages, so the notes below are only intended to give a general summary of morse activity over the past few months. It is very difficult to say whether this activity is increasing, but there is certainly far more of it than voice. Often there may be four or five morse stations operating at the same time, and this could apply to almost any time of day. Keeping up with all this is an enormous task, which can really only be done properly by dedicating our monitoring to particular stations and adopting a more systematic approach, adapted specifically to the habits of those stations. The following notes can only represent a sample of what is actually happening out there; all kinds of news must slip the net - far less likely with voice stations.

M1 In this issue I have included a list of all my logged M1A/B (end-of-month) transmissions, which clearly shows how varied they can be. It isn't always possible for me to log all three of these each month, so any help over this would be very welcome. Daily transmissions of similar format have been reported by Costas in Greece at 1020 on 5638 but so far we haven't been successful in receiving these in England. We wonder where else in Europe these can be heard - please let us know - with logs of complete transmissions if possible. It is interesting to note that element F is confined to Thursday 2000 only - as you can see, three groups were sent on 30th August - a record number. The A network schedule will change for September and October: Schedule Number will be 463 - Sun 0700 6508, Tue & Thu 1800 5474, Tue & Thu 2000 5017 and Sat 1500 6261kHz.

Several B network schedules have also been noted over the last few months: Sat 1605 5321kHz 053 (typical GC: 30), Tue 1440 5967kHz 441 (30), Thu 0705 5247kHz 507 (30) - fortnightly, Fri 2005 4027kHz 293 (30), Mon 1510 5350kHz 638 (15). Most of these operate weekly and schedules are prone to sudden change and bear no relation to the rigid habits of the A network. No doubt there are more of these around - they can only be found by chance.

M3 At present all activity seems to be confined to the lower frequencies (<7MHz). Those in use April to August are: 4901, 5090, 5180, 5360/5, 5520, 5550, 5625, 6850 & 7256. This last one by 552 in May but has now ended. IDs using the higher freqs (up to 10720kHz), the 50- and 55- clusters are not active, however, they're likely to return without warning. This station, like its voice counterparts is in a constant state of flux and changes take place with bewildering regularity. Publishing details would serve no useful purpose! IDs active: 011, 016, 017, 018, 019, 040 (new), 041, 042, 043,

044, 049, 282(new but part of known cluster), 552, 621 & 624 (new). Activity is still very much confined to the 0500 to 0930 period, however, two new evening slots have been found: 282 on Mon & Wed at 2045 (a most unusual time - if they're going to make a habit of this it won't help us!) on 6850 and 624 on Thu at 2030 on 5635. I don't know yet how frequent these transmissions are. Group counts since May show their usual conservatism: 52 54 53 57 58 58 58 51 53 51 56 51 is a typical sample. Messages seem to appear in flurries for several IDs together - all with similar GCs. A most peculiar operation. See also E11, G11 & S12.

M7 Its new and irritating habit of dispensing with the 10 minutes of rapid dashes make this station's ID difficult to catch, for we only have one minute of 'tone sequence' followed by the ID three times. If we find the transmission within this period we're lucky, especially seeing that it favours intervals between hours. Recently I've noticed the usual strings of rapid dashes on habitual M7/M10 freqs followed by long periods of silence (15-20 mins). These are good indicators that either M7 or M10 will eventually appear on that frequency - if MCW, M7; if ICW, M10. Once schedules have been determined, then by monitoring the correct frequency, ready for the expected time, is the only sure way of catching M7's ID. Much more work needs doing to establish: 1 - these stations' schedules and scheduling habits more precisely, 2 - the possible explanations for M7's unique 'tone sequences', 3 - whether there is any pattern in the (occasional?) sending of identical messages on both stations.

M10 See also above. Very active. Many multiple messages sent, and often much longer than in the past. i.e. 2 messages of 40 and 51 groups, 3 messages of 31, 42 and 50 groups etc. More freqs are also being used. Active IDs: 049, 084, 123, 159, 193, 253, 357, 371, 374, 408, 435, 497, 684, 695, 752, 763, 820, 966, 983. On Wed 22.5 at 0630 on 6780//5301 the first message (to 357) had identical 'decode key' and group count i.e. 357 357 357 19 19 19 19 ==, the first time I've noticed this with any numbers station.

A second variant format, M10B, occurred on Mon 22.7 at 0820 on 8165//9455 but unfortunately I missed the beginning of the transmission. It ended with several 5F groups, and instead of the expected == DK DK GC GC there was a pause of about 30 secs followed by 111 000. This schedule operates two weeks per month for 253, and repeats on the next day, same time & freqs. However, this variant was not repeated on the Tuesday and a standard transmission was sent. This probably indicates that the agent had sent a message back in the intervening period. It is likely that Monday's message ended normally, and an

operational code of some kind followed (e.g. 333) then an additional short message was sent without DK or GC. It was clearly no longer necessary to repeat this additional information the following day. M10 is now worth monitoring all the way through to the end, as is also M13 just in case they turn out to be B variants. M7 and M10 may be Slovak as oppose to Czech operations.

M12 Extremely active as usual. IDs since April: 121 125 132 139 142 151 188 213 214 216 234 254 257 260 303 304 315 318 374 418 462 479 511 519 605 638 643 658(very busy) 739 749(another one with heavy traffic) 785 941 & 999. Triplet IDs are very rare, the only other I have ever logged being 888. 999 only popped up once (?) on 14.5 with a DK of 9001.

M13 It now appears that this station is the morse counterpart of a group of extinct voice stations: E18 - Simon Mason's "Fife Free", S4 "Edna Sednitzer" of indeterminate Slavic language, and G22, its newly-discovered German equivalent. It is possible that M13 was phased in to replace the voice stations. Of all known M13 IDs, their serial numbers (unique to this station) would indicate that they all originated within 33 months of each other. We really need early logs of this one for they could determine the precise month of 'birth' of M13, at least in the form that we know it today. The 'youngest' ID, 865, would be 144 months old in December, assuming that its first serial number was 001. On the other hand, these numbers could begin at, say, 100, which would make 865 theoretically 44 months old, in which case it looks very likely that the morse station has superceded the voice networks. Whatever it is, it is some country's primary number station, and is active several times daily.

On 20th May (1900: 10244kHz) a 50 group message was sent to 590. This is a very high GC for M13 which nearly always sends 20-30 groups. Their often non-random nature can be seen from looking at this particular message, which began, 07080 05002, and ended, 00150 05009.

M14 Very active as always. IDs since April: 147 168 193 292 397 571 614 623 631 671 672 691 813 951. On 7th June the lowest recorded GC appeared: 14 to ID 672. On 8th August a two message transmission (very rare) was sent to two consecutive IDs: 361-791/48, 362-451/97. (1900 4973kHz)

M20 I now realise that there are two distinct 'V stations'. One is a form of M23(one form of many); the other seems to be quite unconnected, but shares features with M3 - it always uses M3 freqs., sometimes preceding a M3 transmission within 20 minutes or so. Its ending is identical to M3's i.e. = = 000. It has never been known to send messages and its only other characteristic is a continuous string of Vs. It is by

no means easy to find, and my only logs in the past few months are: Thu 20th June 0820 5550, Thu 27th June 0840 5520 and Wed 7th July 2050 5180kHz. (all regular M3 freqs.)

M23 Although at present dormant, M23 went through one of its inexplicable frantic bursts of activity from around late April to the end of July. Whenever operating, transmissions are daily, at same time and on same parallel freqs. Several overlapping networks operated over this period. As an example, one of these used a 2000 slot on 6918//6920kHz. From 2nd May (or earlier) it sent a daily null message, using the arbitrary all-odd ID, 359. On 22nd May, the all-even ID, 268 resulted in a 34 group message. This same message was repeated daily for exactly a month finishing on 22nd June. There was no transmission on the 23rd, but from 24th June to 2nd July a 29 group message was sent (call 268 again). After this date this network ceased. Other networks operating during this period were to be found at: 0800 10775//11346, 1000 8307//6869, 1200 8307//6869, 1300 6918//6290 and 1700 at first 6918//6920, later 8307//6918. Calls used (all merely as message or no-message indicators) were as varied as usual: 111, 666, 000, 1111, 0000 and 5555. First and last groups are always identical for each message, and always of the form 0xx0x. The penultimate group is also always significant - it always contains a zero, and is usually of the form xx000. A most interesting and entertaining station.

M25 KKN50 is still around - I heard it for the first time in many months on 14th August at 0500 on 6923kHz. (call only)

M26 The "98 Station" returned after a long absence as predicted, however, it's not living up to its name any more. On Wed 14.8 I came across it at 1940 on 5196. It was being much more adventurous than usual. Its ID (for want of a better term) avoided the use of 98 for the first time, opting for 99, 95 and, most unexpectedly, 68. Its 'message' also departed from the usual 17111 etc. style. Here's a sample of its tedious output: 99 50524, 95 12345, 68 10524, 99 10524, 99 00510, 95 12345, 99 00534 etc. This sort of stuff went on for hours as usual. As I half-suspected, 99s, being closest to 98, predominated. 95s were always followed by 12345. Rather pointless, I'd have thought - but who are we to judge the meaning behind their madness?

M29 VDE not heard since July - could easily still be around though. Messages were daily, commencing on Monday and remaining the same all week, being replaced each Monday. The first transmission went out at 1700, being repeated at 1900. Just like G4, frequencies changed at the start of each month. For the record, these were: April 1700 not known, 1900 4620, May 1700 4869, 1900 4640, June 1700 5120, 1900 4770. On

Friday 21st June a 1700 transmission was reported on 5405 - another network?

M33 PBK still following the same schedule. One of our contributors has been sending in meticulous weekly logs of this station. There is enough material to form the basis of an article on PBK's habits and idiosyncracies, some of which have similarities with FDC. PBK is almost certainly operated by French intelligence. Transmissions always consist of six messages - five letter messages are sent one day and five figure messages the next, constantly alternating in this way. The two different types of messages would seem to have two different purposes - only the letter messages are preceded by date/time groups. Still to be found on 6960//5760 daily at 1900 & 2000. An article will appear in the next issue. Many thanks go to Guy of Portsmouth for his dedicated monitoring.

M39 Like M23 and M26, this is another occasional station. Each time it appears it always uses a different 3F ID. It has similarities with S25 in that one ID is associated with several single 5F groups. A typical format would be: 746 746 746 20032 20032 20032 (repeated several times, then a sudden break into a string of dashes, then...) 746 746 746 22749 22749 22749 etc., 746 746 746 91313 91313 91313 (ending with a final burst of dashes). This was the transmission on Thu 9th May at 0800 on 6936. Others logged: Thu 23.5 0700 5027 937-49125...., Fri 25.5 0600 5017 191-62845,98886,14759,60453; Tue 11.6 1900 5530864-95037,38733; same date 2020 648-0xxx8,84026,08752; Wed 14.8 0900 5110421-68237,95046; Wed 21.8 0800 5047297-34003,61428.... Not all of these logs are complete as I felt there were more interesting things to listen out for! The examples give a good idea of the extreme randomness of this station, both in scheduling and in content. Any logs would be appreciated.

That's all the morse news this time round. Don't forget that just because a station isn't listed above it is no longer active. Active morse stations following their usual habits and schedules not mentioned above include: M2, M4, M6, M8, M16, M17, M18 (still on 4502), M21, M22, M24 (included under M14), M27, M28, M31, M32-style networks, M34 - not heard over past few months, M42, M43 & M45.

MX SLHFM activity is much the same as last time. One night I counted 19 operating at the same time! In August the 'R' marker on 3196 had a brief flirtatation with 6390kHz, then after a few days at the most, returned to 3196. During this period its companions on 3323 & 4325 remained where they were. The relatively new 4325 marker seems to have taken up permanent residence there. At around the same time the 3323 'R' developed a bad chirp similar to that of the plaintive-

sounding 'L' on 3091, which has suffered from this complaint for years now, on that frequency. It is not unusual for these 'markers' to move to widely different frequencies: 3323 moved from 7452, and the 'V' at present back on 3174, moved there a couple of years ago from 9162kHz. What does all this mean?

'P' markers, and the solitary 'C' markers tend to be short-lived and are often followed by a few groups in morse and a short burst of FSK RTTY. The others, including the clustered 'C' and 'S's never seem to do anything but bleat out their "ID" for 24 hours a day!

ADDITIONS AND ALTERATIONS TO CHECK-LIST

E6A - 2 group commencing 11111
E20 - 2 message, dual voice version of either E17, E6 or both.
All these could be variants of the same station.
E21 - 4F counting, English accent
 A - American accent
G5A - "Zwei" variant
G8B - Rapid dots intro.
G9 - Change to 'Saxophone piece' (G20 includes Jazz Players!)
G13 - 3/2 group variant
G14A - non-phonetic variant
G15A - PN read over notes
G20 - "Spruch"
 A - one 5F group
G21 - Music and morse
G22 - "Edna Sednitzer" - German version
G23 - 2MB, Hitler's birthday (Langley Pierce)
S2C - 3F Nomer, then reversed
 D - 5F Nomer
S2B - delete: see X1
S6C - Continuous 5F
 D - ID + 111
 E - two message
 F - 00000 00000 (a possible error)
S10B - five note intros. (3 versions)
S17A - no circuit number, positioning index or group count
 B - 01 GC
 C - 313-5F
S24 - delete: a variant voice of S6
S26 - "Zyt! Zyt!" ("Hush! Hush!") - Polish language
V1A - with additional tune
V17 - Romanian 3F + 000
V18 - NNN Hungarian
V19 - WTR21 ("Don't Cry for Me Argentina")
M10B - extra groups, ends 111 000 (complete format not yet determined)
M24 - delete: same as M14, but with long end dashes
M48 - "Ciocirlia" morse version
M49 - G8A morse version
X1 - Bugle (formerly S2B)

FULL LIST WITH NEXT ISSUE

M32 - THE 14403kHz NETWORK (concluding part) - by M.G.

In ENIGMA Newsletter 9, we introduced the highly complex Russian morse net, M32. In this feature, the transmission structure itself will be analysed.

Each message consisted of up to ten elements, excluding the call: A - a random 3F group, probably the decode key. B - a 2 or 3F group representing the approximate group count. C - a 2F date group. (date of message origin). D - a 4F time group, always between 0800 & 1400 and timed to the minute (office hours?). It bore no relation to time of transmission, so probably indicates time of origin of message. E - a repeat of the decode key. F - an optional Z-code group, those used in the sample being: ZLA, ZAY, ZGF & ZOU. G - a 3F group which is occasionally identical in two cosecutive message transmissions - probably the link number. H - an optional 'P' group consisting of 3, 4 or 5 Ps. This may indicate reply priority or message urgency. I - the 5L message proper. J - either ending AR or a further 3F group followed by 'K'. i.e. reply. This group is related to the date of origin, and is identical for 2 or 3 messages together. It is probably an encryption key for encoding the recipient's reply. In the single case where a reply was not required, this group was not sent. Break codes (=) were sent between elements E & F, G & H, H & I and I & J.

A most bizarre peculiarity was the group count given which in only one case was correct! Deviation from the correct number of groups varied between +9 and -10. There is no doubt that the 2 or 3F element 'B' was related to the group count, as in all cases true group counts were high relative to this deviation. (over 100 in most messages). Short of the operator/s being accused of miscounting on 19 out of 20 occasions, I can only conclude that these approximate group counts are not errors. But why send them deliberately?

Here is the first message, as it was sent on 24th Sept 0703:-
GD7U GD7U GD7U DE HRHG HRHG HRHG QTC K (sent 5 times, the last time without the K) 867 180 24 1004 867 = ZLA 499 = PPPPP (189 5L groups followed, not 180) = 200 K

The following messages were (actual GC in brackets):-
24.9 0704 - L22Y-HRHG 995 160 24 1054 995 ZAY 458 PPPPP (151)
200 K
27.9 0906 - ZAND-HRHG 658 32 27 1200 658 - 900 - (31)
AR
1.10 0700 - PLGW-L97M 810 87 1 0955 810 - 749 PPP (85)
072 K
1.10 - NJG5-L97M 886 176 1 1032 886 - 749 PPPP (173) 072 K
1.10 0800 - WEDA-L97M 363 192 1 1038 363 - 173 - (193)
072 K
11.10 - NSMC-ZYDR 335 47 11 1304 335 ZGF 607 PPPP (43) 249
K
11.10 - VWB7-ZYDR 888 132 11 1306 888 - 202 PPPPP (134) 249
K
14.10 0654 - S4NA-ZYDR 453 162 14 0939 453 - 240 PPPPP (161)

478 K
 17.10 0900 - MSLW-ZYDR 644 186 17 1047 644 - 205 P P P P P (196)
 123 K
 19.10 0700 - NSMC-ZYDR 441 64 19 0498 441 ZOU 422 P P P P P (72)
 488 K
 20.10 0600 - 7ADJ-ZYDR 861 106 20 0838 861 - 736 - (102)
 958 K
 22.10 0600 - YEF2-KGA7 518 132 22 0839 518 - 114 - (135)
 253 K
 22.10 0820 - YEF2-KGA7 174 182 22 1109 174 - 114 P P P P P (185)
 253 K
 24.10 0530 - VQMI-KGA7 079 136 24 1054 079 - 803 P P P P P (132)
 803 K
 25.10 0730 - X3Z1-KGA7 522 109 25 1004 522 - 818 P P P P (107)
 145 K
 25.10 0830 - X3Z1-KGA7 955 159 25 1008 955 - 685 P P P P (160)
 145 K
 26.10 - BZ3G-KGA7 592 166 26 1133 592 - 761 P P P P P (166) 860
 K
 27.10 - K7G2-KGA7 040 142 27 0914 040 - 665 P P P P P (135) 876
 K

The 4th message (30th Sept) differed from the others:-
 L22Y L22Y L22Y DE HRHG HRHG HRHG QTC K
 421 150 30 1057 421 = ZRK 876 = AFUD JCHA GRQ? K
 VVVVVVVVVVVVVVVVVVVVVVVVVVVVVVV VSA? K QSV? K QSV?
 VVVVVVVVVVVVVVVVVVVVVVVVVVVVVVV TX TC? K = (about 100 5L groups) 10
 10 7FMS de HRHG QTC K HRHG 350 169 30 1128 350 = 237 =
 (5L message, around 169 groups) AR

Similar nets are still operating all over the HF bands. Does
 anybody monitor them?

MIA/B TRANSMISSIONS

MONTH & TIME	SCHEDULE NUMBER	(ELEMENT) A1/A2	B1/B2	C	D	E (message)	F	G
1994								
JUN 20	025	12728	333 11386	-	111 999	425 40	-	111 000
JUL 20	025	11301	333 11554	777 06 333 10	-	-	-	111 000
AUG 18	025	(5 fig missed)	333 (5 fig missed)	-	111 999	498 40	-	111 000
AUG 20	025	12059	333 12666	-	111 999	298 40	-	111 000
SEP 18*M1?	463	-	-	-	-	418 40	-	111 000
SEP 20	463	51026	333 51794	-	-	-	-	111 000
OCT 20	463	48320	333 47298/48471	-	-	-	-	111 000
NOV 18	197	88014	333 88656	333 08 16	-	-	-	111 000
NOV 20	197	87031	333 87708	333 14	111 999	183 38	111 32931	111 000
DEC 18*M1	197	-	-	-	-	540 40	-	000
DEC 20*M1	197	-	-	-	-	038 40	-	000
1995								
JAN 18	197	53451	111 64131/333 61423	040	-	-	-	111 000
JAN 20	197	38668	333 37395/36238	040	-	-	-	111 000
FEB 18	197	88124	333 88594	333 14	-	-	-	111 000
FEB 20	197	88901	333 88729	-	111 999	729 32	111 00414	111 000
MAR 18*M1	463	-	-	-	-	239 40	-	000
MAR 20*M1	463	-	-	-	-	831 42	-	000
APR 18	463	59529	-	333 10 12	-	-	-	111 000
APR 20	463	59997	-	111 77 55	111 999	173 15	-	111 000
MAY 18	025	11759	333 11292	020 16 19	-	-	-	111 000
MAY 20	025	10252	333 11564	333 07	111 999	611 30	111 (5 fig missed)	111 000
MAY 15	025	12609	333 12202/12840	333 16	-	-	-	111 000
JUN 18	025	12967	333 12279	-	-	-	-	111 000
JUN 20	025	12616	333 12447	-	111 999	612 40	-	111 000
JUN 15	025	11043	333 11619/111 11890	-	-	-	-	111 000

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M1A/B TRANSMISSIONS

Page 2

MONTH & TIME	SCHEDULE NUMBER	A1/A2	B1/B2	C	D	E (message)	F	G
JUL 18	025	13447	333 11309	-	-	-	-	111 000
JUL 20	025	11020	333 11840	-	111 999	416 42	-	111 000
JUL 15*M1	025	-	-	-	-	472 40	-	000
AUG 18	025	12345	333 12051	333 8 11	-	-	-	111 000
AUG 20	025	12767	333 12467	-	111 999	791 40	111 93419 13491	111 000
AUG 15	025	12345	333 12146	-	-	-	-	111 000
SEP 18*M1	463	-	-	-	-	224 40	-	000
SEP 20*M1	463	-	-	-	-	985 42	-	000
SEP 15*M1	463	-	-	-	-	216 40	-	000
OCT 18	463	50033	333 50574	333 5 7	-	-	-	111 000
OCT 20	463	50323	333 50035	-	111 999	131 39	111 02113	111 000
OCT 15	463	52723	333 51575	-	-	-	-	111 000
NOV 18	197	88175	333 88806	333 4 8 9	-	-	-	111 000
NOV 20	197	88702	333 87674	-	111 999	301 40	111 25892	111 000
NOV 15*M1	197	-	-	-	-	131 40	-	000
DEC 18*M1	197	-	-	-	-	707 40	-	000
DEC 20	197	87316	333 86641	-	111 999	367 40	111 98258	111 000
DEC 15	197	80308	333 89103	-	-	-	-	111 000
JAN 18 1996	197	-	333 89011	-	-	-	-	111 000
JAN 20	197	89122	-	-	111	762 20	111 73068	111 000
JAN 15	197	-	-	-	-	504 40	-	000
FEB 20	197	88875	333 87646	-	111 999	201 40	-	000
FEB 15	197	89522	333 89309	-	111 999	979 36	-	111 000
MAR 18	463	59531	333 50836	333 09	-	-	-	111 000
MAR 20	463	50033	333 50430	-	111 999	936 34	111 54113 35546	111 000
MAR 15	463	51722	333 51124	-	111 999	713 40	-	111 000

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MIA/B TRANSMISSIONS

MONTH & TIME	SCHEDULE NUMBER	A1/A2	B1/B2	C	D	E (message)	F	G
APR 18	463	51150	333 51715	-	111 999	361 43	-	111 000
APR 20	463	50644	111 50130	333 4 8	-	-	-	111 000
APR 15	463	50395/51814	-	-	111 999	168 30	-	111 000
MAY 18	025	11719	333 12269	333 08 13	-	-	--	111 000
MAY 20	025	11219	333 12532	-	111 999	634 30	111 35712 94013	111 000
JUN 18	025	12257	333 12969	333 15 16	-	-	-	111 000
JUN 20	025	12577	333 11316	-	111 999	636 40	-	111 000
JUN 15	025	11759	333 11199	333 12	111 999	281 20	-	111 000
JUL 18	025	11167	333 11469	333 12 333 16	-	-	-	111 000
JUL 20	025	11404	333 10292	-	111 999	971 40	111 79890	111 000
JUL 15	025	13821	333 13516	-	111 999	157 35	-	111 000
AUG 18	025							
AUG 20	025							
AUG 15	025							
SEP 18	463							
SEP 20	463							
SEP 15	463							
OCT 18	463							
OCT 20	463							
OCT 15	463							
NOV 18	197							
NOV 20	197							
NOV 15	197							
DEC 18	197							
DEC 20	197							
DEC 15	197							

M13 TIME SCHEDULE

<u>ID/Call</u>	<u>Serial (Dec 96)</u>	<u>Sun</u>	<u>Mon</u>	<u>Tue</u>	<u>Wed</u>	<u>Thu</u>	<u>Fri</u>	<u>Sat</u>
125	150		22					
134	149					21		
149	?		04					
158 (000)	153		20					
163 (000)	173	21				21		
201	147					05		
203	147				08	073		
206	149					21		
224	153					19/222		
245	153					21		
246	151					21		
254	157					21/22		
261	167	19	20/21			073		
271	153							
272	177			21/213	05			
281	160			19			20	20/21
284	147			21/22/23	21			
346	145							21
347	145		21					
352	152			20				
353	150					21		
367	149					21		
369	159							05
387 (000)	154		21	21				
411	172	043/213					20	
415	?							
417	147	19/20	19/20	20/21				
419	149				?	22		
421	147							
427	146		211					
458	147		043/23					
491 (000)	153			20				
497 (000)	168		20	20				
517	152		20/21	19/20				
522	149				21	21		
563	160							22
590	168	20/21/22						
629	150				17	17		
679	159			19			19	17/18/183
703	156		04					
714	147					20		
732	148		215	23				
735 (000)	153			21				
751	151				21	21		
757	172						215/225	
781	147			22	22/23			
803	174			22	06			
823	147			07	07/123			
826	147							20
831	150				20	20		
842	156				22	22		
864	147		203	193				
865	144						15	
903	148	04					06	04
926	147						16	
967	149				053			

All serial numbers are projected to December 1996, whether IDs are active or not. IDs cover the period July 93 to July 96. Where alternative times are given for the same day these may either refer to seasonal change or two separate transmission on same day. (000) indicates ID's known to use MISA format also.

Letters to E.N.I.G.M.A.

Welcome to issue 11, congratulations if you spotted our deliberate mistake in issue 10. Yes we forgot to put a 10 on the cover. Sorry.

We have had lots of great letters and comments and it is difficult to know where to begin !

First a few comments about issue 10. Mixed views continue to be received. From Oswestry in Shropshire comes the comment that ENIGMA should cover a smaller number of stations but in more detail. Meanwhile Alan in Solihull preferred the layout of issues 1 & 2 which he describes as more 'eye catching'. Another valued reader says 'a clearer type face might be better as I am not as young as I was in the Cold War' !

But on the other side of the fence is Jonathan in Zimbabwe who says 'the printed format is very good and I guess a lot of information can be packed in this way'.

We are trying to keep a close eye on the type face, on the question of content ENIGMA continues to gather more and more information. We are keen to give you a comprehensive newsletter with accurate information.

Another subject which carries strong opinion is that of station names. Back to Oswestry 'I don't find the Newsletter as easy to follow nowadays, having started with issue No.4. The descriptions such as M10 or G8 don't mean much'. Also Lars in Germany asks for an explanation of the codes.

Mike in Kent also writes : 'Pet names'. I hope you do not decide to dispense with the inclusion of these, the ENIGMA numbering system is a good one and ideal for our computerised data bases, but not having a 'pet' name will be like losing an old friend to those of us who have been 'at it' for years. You cannot allow them to be dehumanised and de-romanticised into a code number.

Even new stations appear more alluring with a pet name eg ; Cherry Ripe and Bright No Ha. Where's the romanticism in K4 & V9.

Let me try and clarify, first voice stations. Faced with a huge amount of both historical and current information we had to find a way of getting it under control (I cannot take the credit for this). Following the lines of the professionals we introduced a language based coding system, this was then split further by format type. We do not include 'different' voices used by the same station over a period of time.

So, this was the starting point. It is not our intention to throw out all the old "pet names" but to use those which have an identifiable meaning along side the new designations. So Lincolnshire Poacher will remain alongside K3 because it is a part of the station which can be used for identification purposes. Things that are of no use such as Bulgarian Betty are both dangerous and misleading. The station is not Bulgarian and her name would seem unlikely to be Betty !

I agree that some stations now sound rather less interesting but, in certain cases it is the safest way to gain a correct identification. For example ; if you are not familiar with certain German language stations which sound pretty similar then the 'endings' 00000 or 000 000 will make all the difference between G6 & G7. Morse stations are an even bigger problem with so few clues. Making up an ever increasing proportion of traffic the task of sorting out one station from the other is very difficult. The morse format charts are the best way we can come up with to help in making a correct identification.

So I hope that is of some help and reassurance. We want you to enjoy ENIGMA and we are not trying to make it difficult, but in the name of accuracy we are trying to get the subject under control.

Staying on a similar subject Lars in Finsterwalde, Germany & Vassily in Moscow both ask why so many stations speak the numbers in different ways to every day speech.

The first part of the answer is to do with short wave reception. Words can easily be mis-heard and so nearly all German language stations seem to use Svo for 2 because Zwei sounds like Drei over the air. The more difficult part of the answer concerns the 'odd' pronunciations. This is caused by none native speakers reading the numbers. So you have peculiar corruptions to familiar words with Polish announcers reading German and Hungarians reading English ! The results are sometimes less than satisfactory and it is a wonder that agents know whether to blow up the bridge or go to the dinner party ?

On now to the subject of books. Tony in York wrote to tell me that 'The Hobbyists Guide to Comint Collection & Analysis' which was reviewed in issue 10 is available in the UK. Details can be obtained by contacting Lowe Electronics, Chesterfield Road, Matlock, Derbyshire. Telephone UK 01629- 580800.

Tony also mentions the 'Audio Guide to SW Sounds' ; a cassette available from Interproducts, 8 Abbot Street, Perth, Scotland. UK £4.95 inc postage with over 30 sounds in all.

Simon Mason told me about a new book called 'The Ultimate Spy Book' by H. Keith Melton. It contains several pages showing spy radios and one time pads. UK price is about £16. We will try and obtain more details on this, if any reader purchases a copy we would appreciate a review and ISBN details.

Jonathan in Zimbabwe is reading a book called "Every Spy a Prince" billed as the No.1 book about Israel's Secret Intelligence Agencies and the "Complete History of Israel's Intelligence Community". Of interest are rather short descriptions of how communications are maintained with field agents in various instances, including coded messages broadcast during an apparently normal Israel Radio transmission, a female agent in Beirut who sent messages back to HQ by using a favourite piece of Mossad technology, an amazingly tiny radio set, also an agent in Egypt who carried around a transmitter in the heel of his shoe !

The book is written by Dan Raviv & Yossi Melman, published by Houghton Mifflin ISBN 0-395 58120-8 (paperback) 473pp.

A few quick mentions to regular contributors Vassily in Moscow. And Ian in Scotland who tells me his prehistoric typewriter went the way of the pterodactyls and is now working on his new WP. Greetings to Jim in Strathkiness, Ivan in St. Petersburg & Ken in Doncaster, and Hans in Trier, Germany. Thanks to everyone for the logs news and information.

Hi now to Tom in the USA. Sorry we could not fit your letter in last time around. Tom mentions stations V2 & M8 which he is convinced are related. (Ed. They are) He tells us that he heard the voice station sending a normal message but with M8 in the background of the YL sending CW 5F cut numbers. When the YL went off air, so did the Morse signal, even though it did not sign off with its usual AR AR AR SK SK SK. This was a problem with the mixing, not two stations on the same frequency.

We are very interested in comments concerning a station heard in North America with the call sign P7X (this station uses a similar format as P8K) which pops up from time to time sending 120 group messages with high-speed data transmissions between messages. The preambles are always the same : VVV DE P7X IIPII 140230 GR 120 BT, then goes into 120 group message. The group 140230 is the date and time. This station sends two messages an hour, repeating each one, for a total of four transmissions an hour. The station uses one frequency, sending messages none stop for several hours. This will occur for about three weeks, when the station disappears for a while. It will then appear later on another frequency, where the whole process starts over again.

I have heard this is some kind of training activity, (interesting) but I can't speculate on who would be using this station. Frequencies noted in North America are 3278, 4440, 5125, 5397, & 5431. I have also heard this station using call signs E91 & K3C. (Ed. It is believed to be French).

Finally, Tom mentions our feature on New Star Radio in issue 9. In the "Looking East" column it was stated that the "New Star" station had poor reception in SE Asia on 8300 kHz. I thought I should inform you that I was in the Philippines in 1990, the 8300 kHz station had a tremendously strong signal. The carrier stayed on 24 hours per day, and was, in fact, a nuisance when trying to listen to signals close to the frequency.

My thanks to Brian in Crawley, your comments are always appreciated. Brian mentioned our recent piece concerning Radio Northsea International. He says he was unaware of Bollier's involvement in the Lockerbie incident, and several of the other connections you mention. As one of those dedicated listeners, I do remember listening to RNI all the time it was being jammed, and in particular the time when RNI tried constantly to change its frequency to avoid the jamming, only to have the powerful government transmitter sweep over it after about 10 seconds of returning to the air on a new frequency.

The one incident that always stayed in my mind over the pirate ships saga, was the total about-turn made by the opposition once they were elected as the new government, over their election pledge to legalise stations. The suggestion was, that once in power, they had access to secret papers which were not available to them while in opposition, and that this information was of such importance that they were forced to change their policy.

The subject of RNI and the espionage connection is explored to a limited extent in Paul Harris's book "To be a pirate king", which seems to be the source of the original story. (It is not - M.G.)

Another of our regular contributors is Mike in Kent, I will start with an apology, in issue 10, I (Chris) made an error in a comment sent in by Mike in Kent. The section concerning the Buzzer (4625 kHz) should have read, "Is it a propagational marker?" And not "it is a propagational marker". Sorry.

Mike is interested in hearing from other members in Kent & East Sussex and would be willing to set up a Southeast meeting of members every six months or so to have a "workshop". Please write to Mike via ENIGMA and we will pass on your letters.

Another regular reader writes to say that he was listening to R. Netherlands a few weeks ago and they were talking about espionage in the Bosnian War. They said, although it was hard to hear, that several people had been jailed for espionage who came from Croatia and had been caught spying in Serbia. Some were also Serbs who had worked for the Croats and spied on Serbia's extensive Military Industrial Complex. One of these 8 people was apparently a Canadian. People passed secrets from Serbia to Croatia - mostly technical data, particularly concerning their arms industry. Details were few as the cases had been behind closed doors but there had been extensive use of computer disks being smuggled across borders with data such as plans hidden in amongst computer games and other innocuous files. Most espionage over there tended to be of a technical nature according to one of the journalists although the details were sketchy and the broadcast was hard to hear.

Hello now to Peter in Saffron Walden. Thank you for the comprehensive logs and information. Peter keeps us up to date on a good selection of stations including the E5 Counting Station. He mentions some recent errors in transmissions. On the April 8 transmission 6970//8143 he tuned in just after the hour for call "726" when the voice went off air and was replaced by a tone, pulsed at about 3 per second, which lasted for about a minute, then the voice came back starting the call up from the beginning. The transmission did not start until 18.18 UTC.

On April 24 the 8116 kHz transmission was found at just after 13.00 but already in the 5F message - normally this would be in the preamble. The repeat came at 13.05 UTC, followed by "Count 196" & a second reading of 5F. "End" just before 13.23, noisy carrier went off a few minutes later. 8116 was one of the frequencies on which I heard an audio tone along with several other E5 frequencies at approximately 08.00 on Monday 11 March.

After the transmission on 8116 had ended & the carrier had gone off at 13.23, after a few minutes the same noise-filled carrier came back on at 13.27, nothing until 14.00 when an audio FSK type data signal began - like fast RTTY. I have heard something like this before during the winter evening on several frequencies in the 4 & 5 MHz region.

Ed note. One theory is that the E5 messages are sent to the transmitter sites in a compressed data format, sometime just prior to transmission. These are then decompressed into the messages which we hear. This could account for the strange 'audio background' to E5 messages, and poor audio quality.

Peter also comments about the recent mention of the Krogers, - I didn't realise until last year that a feature film had been made of their activities. It was called "Ring of Spies" and was made in 1963 in black & white. (Ed. A book of the same title was also published) I was unaware of its existence until I happened to see it quite by chance one afternoon on Channel 4 about 18 month ago.

Kai in Elsterwerda wrote a detailed letter and comments on the "Tyrolean Music Station" G1. First : Remember, that these were operated by the "Ministerium für Staatssicherheit" (MfS) of the German Democratic Republic. Number transmissions of the MfS have transmitted from Königs Wusterhausen, south of Berlin. Along-side several broadcast transmitter (including 4 x 100 kW short-wave) this site had some 20 kW utility transmitters. One of the services these transmitters carried was the "AgentenUhrstationen" (agent command stations) from the MfS. Utility services from Königs Wusterhausen completely shut-down on October 10 1990. All transmitters were dismantled. The former utility transmitter hall is now a little museum. It is rumoured, that MfS number transmissions also came from the background of various number transmissions the "Soldatensender 935" programme was audible. It is well known that strong AM transmitters can couple into nearby audio equipment. "Soldatensender 935" came from a 250 kW transmitter at the station in Burg, near Magdeburg. According to station staff in Burg, there was not ever a short wave transmitter, only broadcast transmitters for 261 kHz Long Wave and Medium Wave.

In the past Burg had two 250 kW medium wave transmitters, one carrying "Deutschlandsender" on 782 kHz, the second was officially declared as the back up, but in fact carried "Freiheitsender 904" and "Soldatensender 935". From 1979 Burg had an additional 1000 kW transmitter on 783 kHz, and both 250 kW transmitters are now operated on 857 & 1575 kHz respectively.

Burg also carried Radio Volga on 261 kHz. This transmitter is still in use.

Kai says, I think, there is no reason to doubt, that Burg never had short wave transmitters. I think, that it is only a rumour.

E10) Station message strings. I have received several letters, with thanks to Michael in Newcastle-under-Lyme and Brian in Crawley concerning my request for information about message strings from the E10 stations. e.g. VLB D14 D15 D16 D18. I am preparing a feature on these for issue 12 so if any readers would like to contribute copy logs (it doesn't matter if they are old) or suggestions on what these may be or any other aspect of their operation please send them in.

I have some interesting theories to float about these special transmissions.

Hi now to Andreas in Landsberg Germany. Andreas sent in another very detailed collection of comments and logs. Included this time around was his recent visit to Prague. Close to Prague castle is the Ministry of Foreign Affairs (MFA). After visiting an exhibition Andreas had a closer look at the MFA and spotted a strange construction of wires which were surely an antenna, he tells us that he could not see the whole construction which was well hidden.

"There was an exit of the MFA, which was open to let someone out, at this point I could see three Log-Periodic antennas and a strange one that I could not easily describe. I also saw a little T-antenna which is possibly for receiving signals. So I ask : what are these antennas used for ? I don't think that such constructions are there to monitor signals from all over the world. I'm also not aware of short wave traffic of Czech embassies back home (does anyone know about this ?)-and the antennas did not look new."

We also know about the many Czech Number Stations. OLX is operated by the Ministry of Interior, who tell us no other service operates on behalf of the MFA, or maybe the MFA operates it on behalf of the Ministry of Interior."

Ed note ; Why does a small country like the Czech Republic operate a Number Station 23 hours per day ? I wonder, perhaps they send traffic to Central Europe and the CIS for another well known agency which ends in a 6 ! Certainly something still comes out of the Czech Republic for its own intelligence agents but it is not likely to be via OLX.

I also managed to read through "Der BND" by Erich Schmitt-Benboom, the best researched book on the subject of intelligence I have ever read. It was recommended in an ENIGMA some time ago. The book does talk about the Hungarian Intelligence Service. Prior to 1989 it was known as AVH (Allanvédelmi Hatosag) and because of its successes against NATO-states it was feared by the West. It was then turned into the Organisation for the Protection of the Constitution. The new government (in 1991) gave up espionage in foreign countries completely.

(Why did they continue to operate Number Stations then ?).

There was also a small scandal because of the TRIED investigation of opposition politicians. The Hungarian government even apologised to Western countries for what they did in the years prior to 1989. I think they did not give up espionage in foreign countries completely, 3 Note Oddity & VDE are both active. They may have just changed their targets onto former allies like Romania, Slovakia & the former Yugoslavia. That could easily be regarded as only a domestic operation, because all these countries have borders with Hungary and in addition Hungary can claim to have a security interest in the countries.

Another thing that was reported on Radio Budapest, German service, was that after 1989 several hundred people are said to have been observed without permission by the Hungarian Intelligence Service.

The leader of the German minority in Hungary protested that his organisation was being observed. He requested to know the background, reasons, and details about just who was observed. The Minority Bureau also received complains from both Serbian and Greek minorities.

The observations were said to have started on the Southern border in 1992. Refugees from the former Yugoslavia came into Hungary and the Secret Service wanted to restrict "irritations" in the local communities among other minorities because of the incoming refugees.

Also the German minority in Poland is reported to be under observation by the Polish Secret Service, the UOP, one Minister of Interior described them as "a potential danger". (Mitteldeutsche Zeitung, 5.96)

Andreas tells us that he is reading a book called "Im Dienste des Gegners" (freely translated as "Serving for the Enemy") by Heinz Felfe. He tells about the CIA in GDR/FRG. "The net for monitoring/transmitting radio signals from the area of the FRG was very wide ranging. In 1959 a part of this programme went under the name "operation Seatrail" and was conducted by the 513th Military Intelligence Group with the HQ at Camp King in Oberursel. There agent radio operators from socialist countries, esp. from the GDR were trained. The selection of persons as agent radio operators from socialist countries was conducted in such a way as to ensure that the person would be living at home at a time of war. The German speaking operators were equipped with radio and code material with the intention of transmitting information at times of political unrest or war...

One radio operator was assigned to one agent and one only - and the same the other way round. The radio operators of the BND were controlled by American Intelligence.

Mike's report on the American numbers scene was very interesting. There you see, how important ENIGMA is - a forum for discussion and the exchange of news.

The FCC is not reliable in terms of Number Stations - for them everything came from Nicaragua, the US Soviet Embassy - or they traced a thing to "downtown Havana", sometimes even telling the Soviet embassy there.

And last but not least we would like to pass on thanks to Christian in Orianenburg in the former DDR. Christian is a blind DX'er with a keen interest in Number Stations. We have received from him via Andreas over 3 hours of cassette recordings of transmissions from the 1970's and 1980's.

The receipt of these tapes have provided ENIGMA with considerable amounts of new information about both past and present operators and allowed us to fill in the gaps of station evolution. As a direct result of these recording we have been able to considerably update our "Control List". New recordings received not only include stations never previously heard but also variations to existing stations.

- A Polish language version of the "Strich Family"
- A Hungarian language version of NNN
- A German language version of Edna Sednitzer (S4)
- An English (accent) version of the Counting Station

We hope to provide much more detailed information in issue 12, following further analysis of these recordings.

Interproducts 1998 Catalogue

We recently received a copy of the latest catalogue from Interproducts the specialist radio book publisher and distributor.

Whatever your field of interest, shortwave, VHF, or UHF - you are likely to find something to add to your bookshelf.

New books include the 5th edition of the UK Scanning Directory and something curiously called the 'Police Scanning Club'! Books on both aeronautical and maritime communications are also plentiful.

ENIGMA readers will be interested in the updated 'Intercepting Numbers Stations' by Langley Pierce claiming to have all the latest active frequencies. However, Simon Mason informs me he ordered the so called updated version and received the first edition. On returning this to Interproducts he simply received a refund with no explanation. Does an updated version exist? Any comments Langley!

'Eavesdropping On The British Military' by Michael Cannon gives details of how to tune with ease into the secret world of British Military Communications and includes frequency lists from VLF through HF, VHF, UHF upto satellite.

'The Clandestine Broadcasting Directory' by Mathias Kropf is another interesting title by one of Europe's top authorities on the subject.

New is the 'Shortwave Eavesdropper CD-ROM' described by Interproducts as a huge step forward in the accessibility of shortwave utility information. It gives instant access to well over 32,000 frequencies and 42,000 callsigns listing military, tactical, ships - naval and merchant, embassies, aeronautical, press agencies, weather stations and countless more. In-depth country by country information containing QSL addresses, schedules, examples of traffic, and maps are also included.

That's not all! The DX Edge shows you in real time where to monitor throughout the day. There are extensive help menus, tutorials and a very large list of ARQ SELCAL codes. There are even audio samples of data mode and number stations. Shortwave Eavesdropper runs on an IBM PC or compatible computer with CD-ROM drive, at least 4MB of RAM running Microsoft Windows 3.0 or higher and sound board which is optional.

Priced at £25.00 including UK postage and airmail worldwide.

This is just a snap shot of the many books and radio products in the Interproducts catalogue which may be of interest to ENIGMA readers.

You can contact Interproducts at ;

Interproducts 8 Abbot Street, Perth, Scotland, PH2 0EB.

or Telephone or Facsimile

UK : 01738-441199
OVERSEAS: +44 1738-441199

I'm sure they will be pleased to send you a free catalogue.

ENIGMA has no connection with Interproducts.

Simon Mason Writes

Hello again and welcome to another column. This time I was going to go into some detail regarding the Hotel Kilo and Sierra Bravo transmissions but of course Murphy's Law came into play and both these stations vanished from the air in February 1996. At the time of writing only three of the 2 Letter Stations (E16,G16) are operating. These are Mike Delta (E16) Golf Kilo and Whisky Lima (G16) which are currently on air at the following times -

GOLF KILO

MON 19.00 TUE 20.30 WED 20.00 THU 22.30 FRI 19.00 SAT 17.30 SUN 20.30

Try frequencies for GK - 4594 4888 9325 10177 12314

MIKE DELTA

TUE 13.30

THU 13.30

SUN 09.00

Try frequencies for MD - 11545 12092 12210 13890 16220

WHISKY LIMA

TUE 19.00

THU 19.30

SAT 17.30 SUN 10.00

The transmissions of MD WL & GK are something of a reduction compared to only a few years ago when over 80 different call signs were on the air! AU is still around but only very occasionally.

A visit to the library turned up something very interesting. In a book called "Inside the KGB" by Aleksei Myagkov I noticed the following item under the heading "Some revealing traits in the actions of an agent receiving one way transmissions or engaged in radio communications."

The book listed 9 tell-tale signs which may indicate espionage activities.

- 1) Keeping awake two nights running at times of crisis etc.
- 2) Ascertaining the fact of postal correspondence being dispatched after the day fixed for radio transmissions.
- 3) Discovery of his definite frequencies and notebook with 5 figure groups.
- 4) Presence in the attic, in his room or in a shed of large aerials erected for transmission, or of insulated pieces of wire which could be used as an aerial.
- 5) Use of headphones.
- 6) Creating the impression that the suspected person is absent from the flat at the time of reception.

- 7) Refusal to receive visitors especially on the day of reception.
- 8) Recording radio broadcasts on a tape recorder.
- 9) Concealment of knowledge in radio matters.

How many ENIGMA readers would fulfil one or more of these criteria ?

A strange request was published in the World DX Club's Contact magazine recently by Mr Podney R. Sixe of Redruth in Cornwall. He says "Can anyone help me in obtaining an Israel Radio programme schedule of some years ago which shows the frequencies 27905 & 27790 in operation. Also, I am keen to get a cassette recording or log of the 3rd harmonic of the "7m" pop music grind jammer on either 29085 and/or 29115 kHz."

I hadn't heard of either of these transmissions before this, has anyone else ?

In the final death throes of the 2-Letter Stations, on July 3rd 1996 at 21.00, Golf Kilo sent the following group headings. "856 31 gruppen und 43 gruppen. 571 71 gruppen." Altogether 145 groups which ended at 21.24.

Next a couple of logging's which are quite interesting : New Star Broadcasting (V13) Station heard at 22.00 sign on with identification, music and messages on new 9725 kHz // to 8300 kHz. (CONTACT MAGAZINE)

4768 kHz "Cherry Ripe" spy numbers station heard here at 20.00. Same YL/EE as "Lincolnshire Poacher" but different tune. Heavy jamming on frequency possibly from Red China, as this station appears to be in Singapore. (U.S. MAGAZINE - POPULAR COMMUNICATIONS)

Those of you who try your luck on the National Lottery might use the random properties of the number stations to choose your weekly selection.

I prefer to use Mike Delta YL/EE station but any will do, except perhaps OLX which is a little too fast. I take the first two digits of the 5F group if they are between 1-49, any above can be ignored. For example, 12113 89003 42333 23322 33399 09037 would produce the numbers 12, 03, 42, 23, 33, and 09. This method has yielded two £10 wins in 4 months.

If you win don't forget my share !

That's all this time around, Good Listening.

Short shrift

ANYONE who doubts that spying is still rife after the supposed end of the Cold War should tune in a short wave radio any evening between 3 and 20 MHz. They will come across a robotic female voice reading groups of five numbers in English, Russian, German, Czech, Spanish, Chinese and other languages.

Now and again they may hear a male voice in Romanian, English and Russian. These transmissions are instructions in code sent to spies in foreign countries: they have not decreased in the past ten years.

If you come across the someone singing The Lincolnshire Poacher, followed by a British-sounding woman, are you listening to MI6? Nobody knows.

SIMON MASON, Hull

DAILY MAIL 22.5.96

NORTH WALES SPY SET DUG UP IN 1980

Following our request for information in issue 10 the following article was received by ENIGMA.

"In response to your request I did some digging on this and spoke to someone who knows about transmitters. He had newspaper articles on it and collects old military radios so was able to steer me in the right direction for information and gave me a well informed opinion. The information in the articles was sketchy and merely conveyed official dis-information which was considerable in this case.

In 1980 a field was being ploughed in North Wales near Llangollen. 26 year old Goronwy Morris was working on his father's 600 acre farm when a carrying case which looked like a portable typewriter was unearthed in the soil. It seems that it was also wrapped in a plastic wrapper.

It was shown at a National Farming Union meeting to branch secretary, Meurig Voyle and everyone present also agreed that it was a spy radio set but nobody knew what to do with it. The press were told and then the Police. The Police gave the farmer a receipt for a brown box 14.5 inches by 10.5 inches which contained radio equipment. This was the last time it was seen in Wales. Police and Home Office people descended on the farm at Pant y Maen, Llanrhaedr ym Mochnant. They used what they said were metal-detectors all over the area where the set was found and the farmer signed a disclaimer saying he had no right to it. They would not let him watch the search. The Police gave it to the Home Office who then said they didn't have it and that was the last anyone saw of it. Everyone denied knowledge of it including the Anti-Terrorist Branch and Special Branch. A photo had been taken of the set by Voyle before it went to the Police Station at Colwyn Bay. I had heard that messages were put on perforated tape and put through a reader for fast transmissions according to one reporter but I do not know if this was the case. Dis-information is rife!

The local MP wrote to the Home Secretary who said that the set was of foreign origin and was examined by the Security Service. There were no clues to its origin except some bolts with USA stamped on them. It had a wire recorder for sending coded signals at ultra-high speed. There were 40 metal cased frequency crystals in the box which was like a typewriter. This was all in 1980.

In February 1981 a 2.5 inch strip of microfilm was found by the farmer on his desk and he guessed it was from the radio. It had 5 pages and was called "Transmitter Handling and Maintenance" and referred to the device as being housed in a "dead box". An expert examined the instructions and concluded that the radio was from 1965 and could reach Eastern Europe. He felt that a sleeper had buried it who could be activated in the future. A language expert said it was translated badly from a foreign language, probably German. Many Germans go on holiday in that area and one of them could have buried it. It was also found that a party of Russians had stayed nearby years before and they only went out at night.

It later emerged that this Russian "trade delegation" contained four people who had been expelled from Britain in 1971 in a mass expulsion of 105 Russians following the defection of Oleg Lyalin. This Department V KGB officer revealed much information on Russian sabotage plans. He said that saboteurs had been recruited in the UK to destroy radar stations and attack V-bomber bases.

Each unit had a radio set for receiving orders from Moscow and to report the damage they had done. The set was buried in a remote location and one message was sent each year to check that the set worked. The one in Wales was well maintained and it was felt that it had been serviced. It was thought that it could be for a unit who would commit sabotage in the Port of Liverpool or attack the American base at Burtonwood.

Transmitters are occasionally stored in the home under a floor or in a wall or possibly in a garden but then there is a danger of damage from the weather. If it was Russian though I feel that it would have had an anti-handling device because the one they trained Sabotka in Canada to use was a large grey box with a telephone dial for entering coded messages which was squirted when a button was pushed. The instructor told him that it would explode if it was opened or tampered with and if it broke down he should not attempt to fix it ! It was such a sensitive device that he would receive it via drop in Canada after he arrived there. The Krogers had 3 transmitters, I believe. One was buried in the garden, one was under the house and one was under the coal-hole. None of these had an anti-handling device. A defector revealed that buried transmitters in remote locations have a detailed description and photograph on file at the centre in case they are ever needed.

Much of the info concerning the Welsh radio is, I am assured, dis-information. The vacuum tubes were from Mullard and Sylvania, a UK and US Company and the instructions were in English. It was probably an early version of the GRA-71 burst transmitter which was lost on an SAS exercise and then dug up by accident years later. The smoke-screen of dis-information was merely to hide their annoyance at it being dug up again as the area is frequently used for exercises. The wire recorder I suspect was some form of key pad to input messages as magnetic tape recorders were in use by the 1960's when the set was believed to have been made. Hints of East European involvement or SPETSNAZ being behind it are dis-information. Some trooper probably buried it and then forgot where it was and then it was written off.

He probably ended up cleaning the toilets with a toothbrush or painting grass green or many other exciting, interesting and useful things they use humble squaddies for. It could have been for use in case the UK was invaded or in the aftermath of a nuclear war to retain links with units still behind enemy lines. It may also have been something to do with the "Gladio" system. The real answer, as always, will probably never be known except that it is probably a fine example of British technology in the 1960's and caused embarrassment to somebody, somewhere.....It is an ENIGMA....."

Our thanks to 'D' and Simon Mason for information used in this feature, derived from 'Popular Communications' June 1989

RUSSIA STEPS UP SPYING AGAINST GERMANY writes Robin Gedye in BONN.

Russian and eastern European espionage against Germany threatens internal security and is an "outrageous political affront" to the aid and cooperation offered by Bonn, a recent Interior Ministry report stated.

While military espionage remains a priority of the Eastern intelligence service, attention has been diverted to spying out new technology, where Russia is trying to save time and money by stealing Western expertise.

Germany has become the focus of attention for Russia and the former Soviet bloc states because of its strategically vital and accessible situation at the heart of Europe, the report said.

"Russia's pledge to stop sending agents to Germany after the Cold War has proved thoroughly empty," said a counter-espionage expert. "Thousands of agents are falling over one another here from the Russian Federation, to Poland, China and the Middle East. Not only has there been a steady increase in espionage over the past five years, but a burst of activity since last October shows President Yeltsin has ordered an intensification." The report describes the restructuring of Russia's intelligence service since the collapse of communism, saying they have increased their effectiveness.

The FSB counter-espionage department, with 100,000 agents, has taken over the intrusive and omniscient role formerly filled by the KGB. Its new prestige marks a return to the pre-Yeltsin era of a largely homogeneous intelligence service, the report claims.

The FBS's power's have been extended to fighting organised crime and terrorism. In addition to controlling security in the police and military, it looks after economic and foreign security. The SBP, classified as the most sinister intelligence branch, coordinates intelligence services and reports directly to the Russian president on security and espionage.

The SBP is above any legal or constitutional control "operating in a highly conspiratorial sphere" according to the report. The GUO, a sub-unit of the SBP, is responsible for the security of the president and government ministers. The GRU, the military intelligence organisation, has remained untouched by changes to other services.

US CHALLENGE IN GULF RADIO WAR writes Robin Wright in WASHINGTON

The United States launched a new offensive in its campaign to undermine the regimes in Iran and Iraq recently with inauguration of a radio transmitter in Kuwait 12 times more powerful than any allowed to operate in the United States.

Economic sanctions, political isolation and a strong US military presence in the region have made no significant differences to the policies of the governments in either Iran or Iraq. Now the US is trying to appeal directly to local population's.

"Information is a powerful weapon," said Geoffrey Cowan, director of the Voice of America. "So if getting information to people in Iran about democracy and human rights and about what's happening in side their country and in the world makes a difference politically, then this will be a transmitter of tremendous importance".

The 600-kilowatt transmitter will beam signals as far as Central Asia, the Indian subcontinent, the Gulf and the eastern Mediterranean, making US broadcasting available on home and car radios.

The biggest impact will be in Iran and Iraq, where audiences are expected to expand significantly because listeners will no longer need short-wave radios to pick up American broadcasts. The transmissions will be impossible to jam. (Ed. I am sure they will try).

Iranian broadcasts dominate the airwaves in the region, and Washington has been unable to counter them, largely because of poor access to local transmitter sites. The Kuwait move marks a major break-through because governments in the Gulf have long rejected US requests to build a medium wave relay station.

Could any readers confirm if this station is now on air and also the frequency in use. Is it jammed ? Information appreciated from you MH buffs.

Just a bit of space to say thank you to everyone who sent in a letter logs and information. We read everything. Information is also retained for use on future features and projects.

Sorry we are not always able to provide a personal reply. The next issue of ENIGMA will be published around the end of FEBRUARY 1997. We would appreciate your contributions by FRIDAY 24 JANUARY 1997.

This will give you plenty of time to digest the contents of this issue and listen out during the cold winter nights !

In the next issue of ENIGMA ;

Full updated control lists for both Voice & Morse.

Feature on the E10 - Phonetic Alphabet Station - Message Strings.

Plus all our usual sections.

We will also be looking to complete those features which we started in previous issues, including the Czech stations.

PLEASE SEND IN YOUR RECEPTION REPORTS COMMENT AND LETTERS TO ARRIVE BY FRIDAY JANUARY 24 1997.

WE NEED YOUR CONTRIBUTIONS AND VALUE YOUR SUPPORT OF ENIGMA
THANK YOU

HAVANA MOON

Following on from issue 10 and the late news item concerning Havana Moon. My thanks to Ken in Doncaster for the following article which appeared in the March issue of the US magazine Monitoring Times.

Who was Havana Moon, Some readers may not even remember Havana Moon or the era in which numbers transmissions were much more a mystery than they are today.

Havana Moon was a pseudonym used by William T. Godbey, a former US Intelligence officer, who became known in the hobby as one of the foremost US experts on covert radio and short wave numbers transmissions. Bill wrote a regular column for Monitoring Times from May 1983 to June 1986. He died on January 9, 1996, at the age of 58, after a brief illness.

Bill recently retired from numbers chasing and spent the last several years happily and quietly with his longtime sweetheart and companion, Christine Klauberg Paustian, and her family in Westchester County, New York. The following is a short sketch of Bill Godbey, the man behind Havana Moon, as remembered by Christine. She would welcome letters from fans and friends c/o NetSurf Technologies, 1858 Pleasantville Road, Briarcliff Manor, NY10510. U.S.A.

When Bill first told me about Havana Moon I laughed. And so did he. He always relished a good joke - I can still hear that distinctive chuckle, and see the impish grin and the twinkle in his eyes.

The persona that became a legend was born out of a joke over twenty years ago, and this time, he came to be known as what may have been the foremost US expert of his time on the odd short wave mystery broadcasts known as the Number Stations.

He was a radio buff for most of his life. Bill got his first ham call, W5YHS, back in Arkansas when he was just a kid of 12. He developed a fascination with codes and ciphers, and his expertise in cryptography took him into various military intelligence commands, which led in turn to a career as an intelligence officer in the National Security Agency. That affiliation was the reason for all the mystery, and the pseudonym. Anonymity seemed the best way to handle the whole thing - who ever knew that it would take on a life of its own!

Bill earned a degree in broadcasting and journalism from Arkansas State College. He spent years as an air personality and Program Director at AM stations throughout the south, before moving into the world of newspapers. He worked at the Oakland Tribune and the Palm Beach Post for many years. He was a talented and accomplished photographer, an avid gardener, and he knew more about rhythm & blues and rock & roll music than anyone I have ever known.

*The Numbers columns and articles first appeared in the Newark News Radio Club bulletin, and moved through the years to Monitoring Times, Popular Communications, The A*C*E, Umbra et Lux, The Numbers Fact sheet, Los Numeros Online, Clandestine Confidential, Radioscan and SIGNALS.*

There were a couple of books, and countless radio and magazine interviews - all about numbers - an oddly arcane subject made all the more fascinating by the silent silhouette in the black fedora.

In the last years of his life, he pursued more traditional and ordinary things - he loved our house and garden, and competed in a good-natured way with the neighbors to make our home the showpiece of the block. He got a new ham license, KB200R, and hung out on 2 meters and in the diner with a bunch of his cronies. He loved his radios and tag sales, the lottery and pepperoni pizza - crossword puzzles, the Sunday Times, and a good cup of coffee - he loved the blues, the Honeymooners, and our menagerie of assorted children and pets.

I treasure the years we had together. And as much as I would like to have kept him all to myself, a part of me is glad - finally - to share the real man with all of you. William Thomas Godbey was born in McCory, Arkansas, on September 5, 1936 - he died peacefully in North Tarrytown, New York, on January 9, 1996.

Christine Paustian.

THE LAUGHING CAVALIER

Back to Britain now, but staying on a similar theme. From American numbers monitors onto a famous British name from the past. The 'Laughing Cavalier' was a regular contributor to Short Wave Magazine for many years and sent in numbers logs and information. This was at a time when no one really dared to mention the subject, let alone openly write about it in a British magazine.

You may recall that we appealed for information back in issue 8 about the Laughing Cavalier, the following arrived concerning him.

" You asked about the 'Laughing Cavalier'. This person was actually called Peter Quientel who was an ex- GCHQ analyst and one time SIS officer who took early retirement. He was in a clandestine radio society in London which specialised in listening to numbers stations. His knowledge was considerable as he worked in COUNTERCLAN in the 1960s. I regret to inform you that this person is now dead and a sad loss to the underground radio monitoring world. He used to keep his logs and notes well hidden resulting in their loss after his death and so they are not available to anybody. Most of his knowledge died with him although he rarely talked about the details of his working life.

He is survived by a wife who still lives in London although she knew very little about his working life".

In another letter concerning Peter Quintel we heard that he had indeed died from a heart attack at his home in London and had monitored number stations since 1961.

If any readers have any further information it would be most appreciated, also if you have any copies of his information which appeared in Short Wave Magazine we would appreciate a copy, from memory it used to appear in the SSB Utility Listening column when it was edited by Peter Rouse, although material may also have appeared elsewhere in the magazine.

Can anyone tell us more about COUNTERCLAN and also the Clandestine Radio Society in London which are mentioned above ?

Things That Go Buzz In The Night

HAARP - The Truth is out there (but finding it could prove almost impossible).

In our last issue we asked if any readers could provide information concerning HAARP - High Frequency Active Auroral Research Project.

We received considerable material via the Internet and also a copy of the book "Angels Don't Play this HAARP - advances in Tesla technology" (more on this later). The problem comes in finding the middle ground between the extreme views held in some quarters and the official line - somewhere along the path is the truth about HAARP.

If you have not heard anything about HAARP the following feature written by John Fulford provides an excellent introduction.

What's Happening in Alaska ?

Should you find yourself in Alaska this year, take a side trip to a location approximately two hundred miles southeast of Fairbanks. You will be in the town of Gakona, Alaska. Proceed down the Tok Highway to mile marker 11.3. This will place you at the geographic coordinates of 62 degrees 23.5 minutes North and 145 degrees 8.8 minutes West. Find the big gate that says HAARP RESEARCH PROJECT. You are there.

Where is "there" and what have you found ? Proposed in the early 1990's and due for completion somewhere around 2002, this is the site of the joint U.S. Air Force and Navy project code named HAARP-High Frequency Active Auroral Research Project.

Much speculation has been written regarding this project-all the way from a doomsday machine which will destroy the earth, to a machine designed by the government to disrupt brain patterns, change the weather, interfere in wildlife migration, and even burn a hole in the upper atmosphere.

Putting the intent of the project aside for a moment, what we basically have up there is a massive transmitter array. It is a phased array, built on a 33 acre bed of gravel, measuring approximately 1000 by 1200 feet. There will be 180 towers arranged in a rectangle, each of which will support at its top two crossed dipoles. One set of dipoles will be for the low frequency array, from 2.8 to 8 MHz. The other is for the higher frequencies from 7 MHz to 10 MHz.

Providing perimeter protection around the array is an electrified fence which will keep away the roaming animals. There is an elevated electrical ground approximately fifteen feet above the ground under which vehicles may drive between transmitter shelters and the control room.

There will be thirty individual transmitter buildings constructed. Inside each building will be six 10 kW transmitters. The radiated power will be $6 \times 30 \times 2 \times 10 \text{ kW} = 3,600 \text{ kW}$. The entire project will be powered by six 2,500 kW generators.

When the transmitter are energised, they will provide a radio signal that is very narrow beam and is adjustable in amplitude and phase. The field intensity will be a few hundred millivolts per square metre. This is less than the natural ultraviolet radiation present in those latitudes.

The actual project will be in two parts, the first part described above, to be known as the High Frequency Ionospheric Research Instrument (IRI). The second UHF radar known as an Incoherent Scatter Radar (ISC). It will be used to measure electron density, electron and ion temperatures, and doppler frequency drift. The two U.S. Government agencies involved are the U.S. Air Force (Phillips Labs) and the U.S. Navy (Office of Naval Research and Naval Research Laboratory). The government agencies have publicly announced that this research station will be used in instrument design, including HF ionosondes, ELF and VLF receivers, magnetometers, and a project know as LIDAR (Light Detection and Ranging) in both optical and infrared spectrum.

What does this mean for us radio spectrum listeners ? What will this machine do to the radio spectrum ? Frankly, we don't know. It is a research instrument that will heat the ionosphere and allow the earth bound scientists to measure what these heated ionospheric particles will do to radio transmission signals.

Modulation of one radio transmission by another radio transmitter will be examined. This was first noticed in 1933 with Radio Luxemburg, which was superimposed over another European long wave station. Both of these long wave stations were located in the upper latitudes and both had output powers over one million watts. Talk about upper atmospheric heating !

Those who live at the latitudes involved with this transmission system, have speculated a great deal about about the effect of these transmissions on the Northern Lights. The Northern Lights, or Aurora Borealis, wreak havoc with worldwide radio transmissions, especially in the short wave spectrum. What will happen if this project has an unexpected effect on these lights ? Could such a project have a pronounced impact on short wave radio as we know it ?

Two other ionospheric research projects are operated by the U.S. Government : one in northern Alaska and the other at the observatory at Arecibo, Puerto Rico. Both of these have been in operation for years, although their radiated power is less than that proposed by the HAARP project. We have all heard these ionospheric sweepers throughout the shortwave band.

There is a five-nation consortium based in Europe which is doing the same thing. Known as the European Incoherent Scatter Radar, * this has one site in Norway, one in Peru, another near Moscow, and two other sites. This project also involves ionospheric heating at powers less than what is proposed by the HAARP project.

The project is due for completion in 2002. If you are connected to the Internet, do a Website search for the keyword "HAARP". There is plenty to find there and some interesting documents to read.

John Fulford
Federal File

Earlier we mentioned the book "Angels Don't Play This HAARP" Advances in Tesla Technology. This new book co-written by Jeane Manning and Dr. Nick Begich covers 233 pages on the subject and we can recommend this most detailed and well researched publication.

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So what are we listening out for ? This seems to be a fair question. But so far no positive frequency or mode information on either HAARP or the European Incoherent Scatter Radar would seem to be available. It is possible that some of the signals may have been mentioned in our BUZZ pages but not linked with these projects, after all they are rather like the number stations and don't want to give the game away.

We would appreciate any information on possible frequencies or modes for either of the above mentioned projects.

* The full list of sites for the European Incoherent Scatter Radar (EISCAT) are located in northern Norway near Tromsø, also at Jicamarca, Peru ; near Moscow, Nizhny Novgorod ("SURA") and Apatity Russia ; near Kharkov, Ukraine and in Dushanbe, Tadzhikistan.

Welcome along to another "Buzz" page or two, in our questionnaire you asked for more from this section. We hope that this issue will provide you with some interesting information. Not only have we featured HAARP but also a major feature on the Buzzer and further information on those mysterious Faders.

But let's just have a quick look at a few old friends -

THE PIP - No change, still active on 3757 & occasionally 5450 kHz, best reception in Europe during hours of darkness.

THE ECHO - Moved from 4105 to new 3964, but may change again without warning, again best reception during hours of darkness.

BACKWARD MUSIC STATION - More chaotic information about this signal. Tends to operate in the evenings on 6695//3740 or 6584//6695. And Day time 9223.

The signal changes between a low buzzing sound up to a pulsed warble and is incomprehensible in nature. One report we have received suggests that this is nothing more than feedback from a radio telephone link operated from Algeria ! Comments welcome.

THE CRACKLE - No major changes, still heard on 5500/5505, and 9223. Seems to have some connection with the above mentioned Backward Music Station.

THE SWEEPING CARRIER - A new transmission has recently been noted, this operates on a 4 minute cycle at 30 second intervals. The signal sounds just like a jammer and uses a swept carrier. It does however display an unusual use of frequencies, which are always used in the same order.

Although it sounds like a slow sweeping jammer to the passing listener its operation does not suggest any kind of jamming activity.

Frequency cycle and time in minutes and seconds.

0.00 = 7680 0.30 = 7690 1.00 = 7700 1.30 = 9185 2.00 9310
2.30 = 9332 3.00 = 10120 3.30 = 13430 4.00 Back to 7680.

If you tune to just one frequency and wait the station will appear within 3.5 minutes. From this you will then be-able to follow it around its cycle. Any comments on this most appreciated.

FADERS (XF) - We have made some progress with these rather anonymous signals. Detailed analysis shows that the signals are made up of a multiple modulated AM signal.

The steps are 500 HZ 1100 HZ 1400 HZ 2kHz 2.6kHz 2.9 kHz & 3.4 kHz. One reports suggests that these signals are NATO active MODEM's which operate in network passing messages. I floated this information with regular contributor Mike in Kent. He comments (I will try and get this right this time) " At least we're making some progress by confirming multi-mode AM. I'm a bit sceptical about NATO modems as most traffic is now on the Milsat's so why should they use HF with all its associate difficulties. The amount of traffic and number of frequencies is also far in excess of any operational requirements on a day to day basis, emergencies excepted. Also no one has heard any voice traffic, which could be expected from time to time as various circuits and nets are set up and equipment aligned and tested."

Fader frequencies noted since last issue of ENIGMA include (many more are probably active) -

3218 Heard transmitting on top of a 'Shipping Warning' of debris from station LYL on April 8 at 20.40 UTC.

4020	5090 on top	6825	7658	9125	10142	13430 (weak)
4460	of JSR			9245	10481	
4478	5195				11102	
4500	5313				11517	
4845	5328					
	5400					
	5468					
	5788					

Do any readers know about a system call 'Park Hill' (yes I know it sounds like a brand of cigarettes) - what does the mode sound like? Is it still an active system? Help required.

THAT'S ALL FOR THIS ISSUE - THEORIES COMMENTS & LOGS ALL APPRECIATED.

THE BUZZER 4625 kHz (and occasionally other frequencies)

We are still determined to learn more about this seemingly pointless transmission and I hope the following article will prove thought provoking.

I ask you to forgive me for going over some old ground but hope that the direction we are heading will be of interest.

A key point to the operation of this station is its starting date and any information we can obtain on this would be very useful. It is my feeling that it began transmitting sometime after 1986, but before 1989.

Because the signal does not have a call-sign and is not a recognised transmission or I.T.U. registered, then almost everything else is left to the imagination. For years, listeners in Europe and the United States have been fascinated by this signal. Rumours that it came from the former Soviet Union have persisted (I should add that most things we don't understand seem to be reported as East European or C.I.S. in origin).

The earliest direction finding results I received pointed towards the C.I.S., indeed the signal was reported to be coming from an area just outside the Polish border in Byelorussia. (It may be possible that the location was changed). In 1995 I received a further DF fix taken with the use of an HF direction finding station, this placed the signal in an area South East of Moscow. The exact location is reported to be near the town of Penza some 300 miles S.E. of Moscow.

Before we move onto the questions of who receives the transmitted signals and why, we will first look at the mode of operation.

Much study, both basic and technical has taken place, but all roads seem to lead to the same point. No complex data or sophisticated unknown mode is in operation. All the Buzzer sends is a simple noise - nothing more than a status indicator. The variant at just before the top of each hour seems to be nothing more than the introduction of a further tone sequence.

So far so good ; we know where the transmitters are and we know that nothing complex is happening - so who is listening ? Well, apart from the members of ENIGMA and no doubt many other puzzled SW listeners - not many others I guess.

Like most transmitters which send information there is also a receiving station. In the Buzzer's case the signal is reported to be received in Austria. This does sound reasonable, the transmitter and receivers are at fixed locations. Vienna and Penza are not too far apart, the signal remains on 4625 kHz 24 hours per day and although it is not audible in the UK during the daytime I guess it is audible in Austria.

You may ask why the Buzzer also turns up on other frequencies for short periods of time. These are most probably tests from a back-up transmitter located elsewhere, which, would switch on in case of a problem.

So just who is listening ? The receive site is reported to be at the United Nations Vienna International Centre in Austria. But Why ?

Thank you for staying with me so far, the next part of my feature is something of a calculated guess, but if you look at all the evidence so far it may make you ponder !

In April 1986 a terrible accident occurred. Many people died and thousands of others suffered irreversible illness. This accident was the world's worst nuclear disaster. A reactor at the Chernobyl power station melted down.

The International Atomic Energy Agency is the body which regulates and advises on the peaceful use of nuclear power. It has established a system used to facilitate emergency assistance to member countries in the event of radiation accidents.

The headquarters of the IAEA are situated at the Vienna International Centre, Wagramerstrasse 5, P.O. Box 100, 1400, Vienna, Austria.

It is my opinion that the Buzzer is some kind of 'status indicator' for the disabled Chernobyl nuclear reactor. What exactly this means is open to comment, but perhaps the signal we hear all the time is simply saying that everything is stable.

You may at this point still be a bit dubious ! Have you heard of the Gamma Curtain ? Recent reports have suggested that Russia's nuclear power stations "posed an unacceptable risk" to safety. High investment was needed to bring them upto western standards. Should another accident like the one at Chernobyl occur, there is as yet a limited capability for tracking the radiation plume.

Enter the "gamma curtain" - an early warning and monitoring system - in Belarus and Ukraine. Set up at a cost of £3.1m with money from the European Commission Tacis (technical assistance to the CIS), Gamma-1 will be fully operational by mid - 1996.

The gamma curtain is similar to systems already in use in the west (more on this in a moment). The system will also give western Europe an early warning of any accidental releases of radiation. The system is a detection network, with radiation monitors sited around the nuclear stations connected by radio link to local response centres which collect and process the data. Duplicated computer systems at each centre enables operators to monitor the situation continually. However an alarm is automatically raised if present thresholds are breached or any systems malfunction are detected.

All data are sent automatically to two national response centres, one in Kiev and the other in Minsk, via dedicated phone lines. Summary data will also be sent to western Europe via E - mail on a routine basis and immediately if the situation warrants it.

Three stations have been selected for phase one. Ignalina in Belarus and Rivne and Zaporizhya in Ukraine.

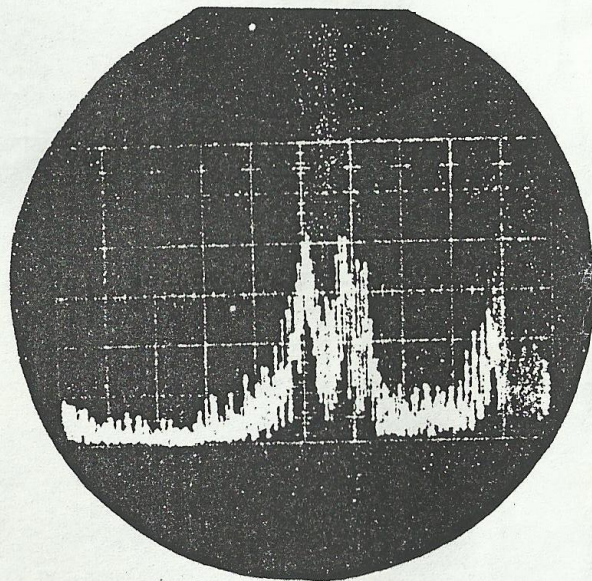
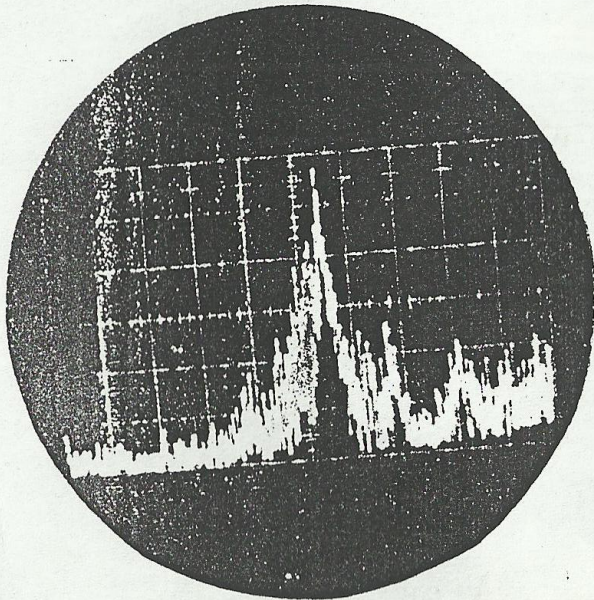
Chernobyl was not chosen because the severe contamination in the area would have presented additional complexities for the pilot system.

If we are anywhere near the truth on this then it opens up a whole area for other 'seemingly pointless' signals. The 'Pip' and the 'Echo' must be candidates for some kind of status function. What about single letter beacons ! Perhaps not all of these are of the same magnitude as the Buzzer but it is well worth thinking about.

Photographs of the Buzzer using a spectrum analyser, thanks to Mike in Kent. Resolution 1kHz\DIV.

BUZZER IN NORMAL MODE

BUZZER IN 'WARBLE' MODE
JUST PRIOR TO HOUR.



Information on the gamma curtain with full acknowledgements to Dinah Greek.

Detectors placed at ground level immediately around the plant are not enough as plumes may rise above them. Detectors have been placed high up on buildings for security. Also because plumes may "rain out" and cause serious radiation hot spots well away from the accident area. Further Geiger Muller counters have been placed in expanding and overlapping rings at distances of upto 20km from each plant.

Earlier I mentioned that the gamma curtain is similar to systems already in use in the west. The outline of Britain's own early warning system is built around the possibility of a nuclear attack, although these same systems would seem likely to respond in the event of a nuclear accident.

AWDREY : (Atomic Weapons Detection Recognition and Estimation of Yield) would provide warning that an attack was under way and can detect explosions at least seventy miles (120km) away.

DIADEM : Seismographic stations and R.P.B.'s system RIMNET would also contribute data.

HANDEL : A signalling system links the High Wycombe H.Q. with 252 police stations and headquarters throughout Britain. These in turn distribute information onto some 15,000 carrier receivers. When not in use, the warning receivers are turned down but not switched off. Normally, they emit a quiet ticking sound, a sort of nuclear 'all's well'.

In recent years considerable changes have taken place within the warning system (mainly due to the end of the Cold War). Readers in Britain may have noticed the building of small 'mini net' stations. These are situated at the side of roads and motorways, they look quite innocent and doubtless anyone asking too many questions would probably be told that these machines gather weather forecast data! There is some truth in that, but the main purpose is to gather data in the event of a nuclear attack or accident. Windspeed and direction is required to determine the path of fallout plumes.

In the event of an attack or accident the United Kingdom Warning and Monitoring Organisation UKWMO would supplement net office data. Bracknell Weather Centre (Central Forecasting Office) along with 8 Upper Air Stations, are closely involved in providing weather forecasts for military operations. These 'mini net' stations provide anemometer - windspeed and direction, and relative humidity readings which are vital for building up a picture of any particular zone if events dictate.

The 'mini net' stations operate on a remote system and data collected from them is sent over BT lines probably via the 'HANDEL' network. The lines used are those which carry the speaking clock. These use a system of 'carriers' (the carrier frequency is 72 kHz, far outside the audio range, although modulated by an audio signal) onto ordinary telephone lines, this enables these stations to be cheaply connected into the system and for data to be received from very remote areas.

We would appreciate your comments on this feature, remember that we are making suggestions and not statements about the Buzzer and the like, so please keep sending in information.

ENIGMA ARE DENIED PERMISSION TO USE THE WULLENWEBER DIRECTION FINDING ANTENNA AT MENWITH HILL LISTENING STATION IN NORTH YORKSHIRE ENGLAND.

